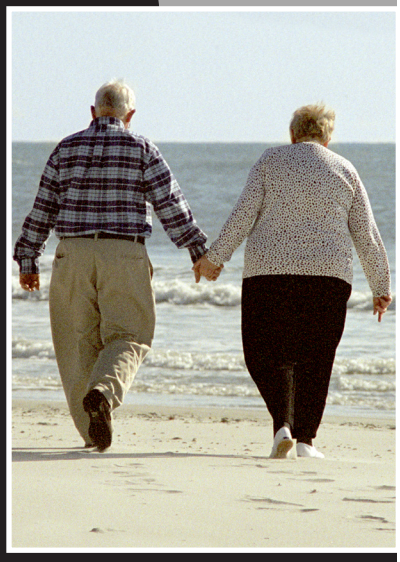
South Carolina Air Program

1990 | 2005

A Decade and Beyond



Bureau of Air Quality
2600 Bull Street
Columbia, SC 29201
http://www.scdhec.gov

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control
CR-003800 4/06

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INTRODUCTION

The goal of ensuring that all South Carolinians enjoy clean air continues to be a challenge for the South Carolina Department of Health and Environmental Control's (DHEC) Air Program. While we continue to appreciate good air quality in South Carolina, a growing population makes it more challenging to maintain clean air that meets changes in federal environmental standards. The U.S. Census Bureau estimated that South Carolina gained 43,000 residents from July 2002-2003.

This year's publication reviews more than a decade of South Carolina's air quality. Reviewing the past decade and beyond and highlighting significant trends and changes in air quality help the public understand the positive impact on and the continuous improvement made since 1990. Since the passage of the 1990 Clean Air Act Amendments (CAAA), the Air Program has played an important role in maintaining national air quality standards in South Carolina.

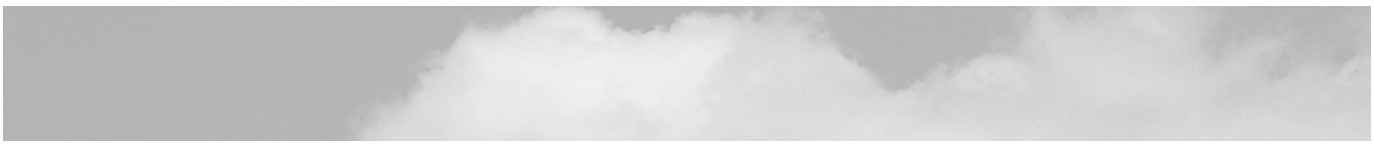
DHEC's Bureau of Air Quality (BAQ) has made organizational changes to implement these amendments. These changes are highlighted throughout this report.

Significantly, budgetary cuts have played an important role during this review period and have forced the agency to adopt a more business-like approach in dealing with regulatory changes. Staff have been innovative in their attitude of "having more to do with less." This report bears witness that Air Program staff are committed to planning for responsible growth so that problems with air quality do not jeapardize the vision of "Healthy People Living in Healthy Communities." (http://www.scdhec.gov)

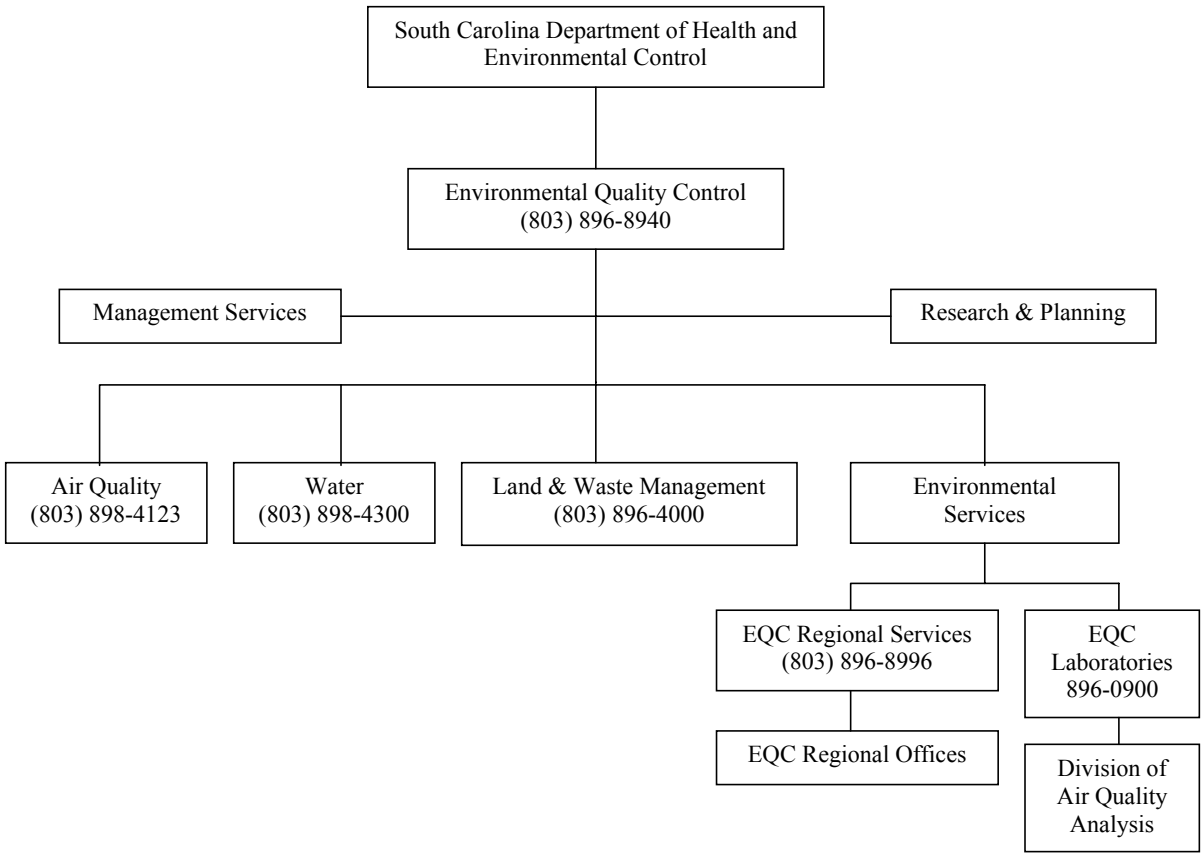
We hope the information provided in this report will prove useful and generate interest and participation from the public in initiatives to protect air quality in our state.

Highlights

- Implementation of a streamlined permitting process (outcome of Restructuring Act in 1993) increased compliance and ensured that resources were used in the most effective manner
- Implementation of the Small Business Assistance Program
- Promulgation of significant air quality regulations
- Continuous expansion of education and outreach activities
- Improved customer service through electronic communication
- Ground-level ozone forecasting expanded from three to four geographic regions within South Carolina



Environmental Quality Control Organizational Chart



Bureau of Air Quality
Organizational Chart
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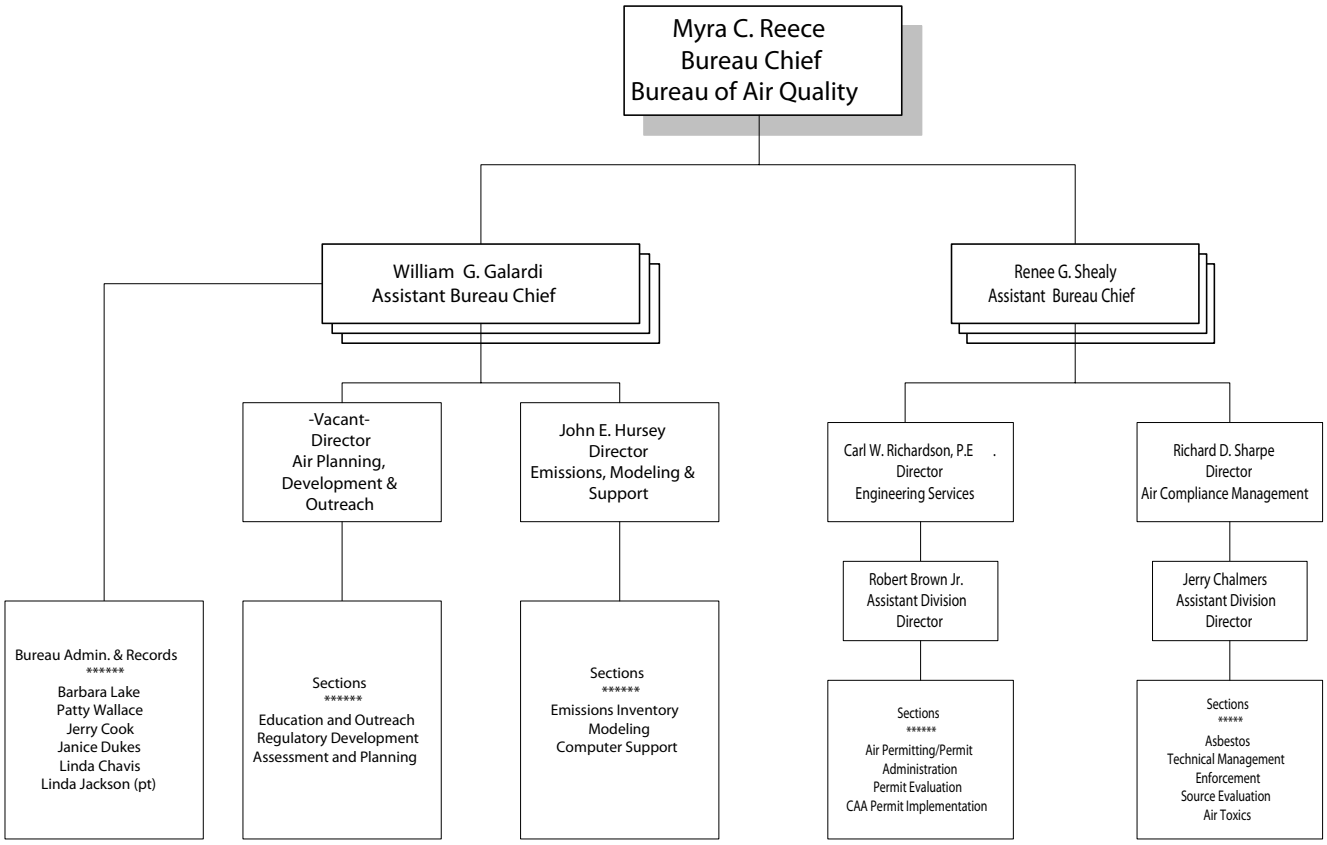

Editor's Note: The most current organizational chart can be found at http://www.scdhec.gov/eqc/baq/pubs/baq_orgchart.pdf

D H E C

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S.C. DHEC Officials

C. Earl Hunter
Commissioner

Robert King
Deputy Commissioner,
Environmental Quality Control

Board of Health and Environmental Control

Elizabeth M. Hagood
Chairman
Member at Large

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District 2
Richland, Lexington, Calhoun, Aiken, Orangeburg, Barnwell, Allendale, Hampton, Jasper, and Beaufort Counties

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District 3
Pickens, Oconee, Anderson, Laurens, Abbeville, Greenwood, McCormick, Saluda, Edgefield, and Aiken Counties

Paul (Bo) Aughtry
District 4
Greenville, Spartanburg and Union Counties

Glenn A. McCall
District 5
Cherokee, York, Chester, Fairfield, Newberry, Lancaster, Chesterfield, Marlboro, Lee, Darlington, and Dillon Counties

Coleman F. Buckhouse, M.D.
District 6
Marion, Florence, Sumter, Richland, Calhoun, Clarendon, Williamsburg, Bamberg, Orangeburg, Georgetown, Berkeley, Dorchester, Colleton, and Charleston Counties

Editor's Note: *For informational purposes, this listing represents the most current commissioner and board members for S.C. DHEC as of 2005.*

BUREAU OF AIR QUALITY MISSION STATEMENT

To conserve and enhance air resources in a manner that promotes quality of life.

To support this mission, the Bureau of Air Quality (BAQ), in cooperation with the central office, regional offices, air laboratory and small business assistance program, assures responsible stewardship of air quality and provision of customer service by:

- Assuring the air quality is within the limits prescribed by state and federal laws and defined in permits, licenses, and certifications;
- Monitoring and sampling air pollution sources and the outside air;
- Assessing the impact of environmental emergencies and providing timely response to those emergencies;
- Responding to requests for air quality-related information in a timely manner;
- Administering an inspection and certification program for asbestos renovation and demolition projects;
- Designing and implementing emission control regulations;
- Issuing construction and operating permits for regulated sources of air emissions; and
- Taking enforcement actions when appropriate.

HISTORICAL DEVELOPMENT OF THE AIR QUALITY PROGRAM SINCE 1990

The Clean Air Act (CAA), originally enacted in 1963, revised in 1970 and 1977, and amended in 1990, is a federal law that authorizes the United States Environmental Protection Agency (EPA) to establish air quality standards to protect public health, including the health of sensitive populations such as asthmatics, children and the elderly. It also authorized the EPA to set limits that protect public welfare, including protection against decreased visibility and damage to vegetation and materials. Under this Act, the EPA sets nationwide limits on air pollutant concentrations. Its nationwide applicability ensures that Americans living in all areas of the country may expect the same basic protection in regards to their health and the environment in which they live. Individual states can impose state regulations that are more stringent than the federal limits. Nationally, air quality has continued to improve during the past 10 years and beyond for all six criteria pollutants: Lead (Pb), Carbon Monoxide (CO), Sulfur Dioxide (SO2), Nitrogen Dioxide (NO2), Ozone (O3), and Particulate Matter (PM2.5 and PM10). Since 2000, air quality in South Carolina has continued to demonstrate a steady trend of improvement.

Several key organizational changes have been made over the past decade and beyond that contributed to the steady improvement of air quality.

The Modeling Section was established in 1990. Before a facility is issued a construction permit, it is modeled to make sure that sources that emit regulated air pollutants can comply with Regulation 61-62.5, Standard 8, *Toxic Air Pollutants* (approved in June 1991). This section later expanded to include modeling at operating permit renewal dates, ozone forecasting and recently, ozone modeling.

To more effectively regulate asbestos, more emphasis has been placed on public awareness of asbestos management and increased abatement training with contractors.

The Air Toxics Section was created in 1997 to address the Environmental Protection Agency's risk management program. This section has since expanded to encompass Maximum Achievable Control Technology (MACT) Regulations.

In 1998, the Bureau reorganized, and out of that process, the Division of Air Planning, Development and Outreach was established. It was comprised of three sections: Air Assessment and Planning, Regulatory Development, and Air Education and Outreach. Effective in February 2006, the Bureau reorganized in 2005 with the following changes:

The information Technology Support Section was re-assigned to the Division of Air Planning, Development and Outreach.

The Air Toxics Section and Toxics Release Inventory (TRI) activities will be re-assigned to the Division of Modeling, Emissions and Support.

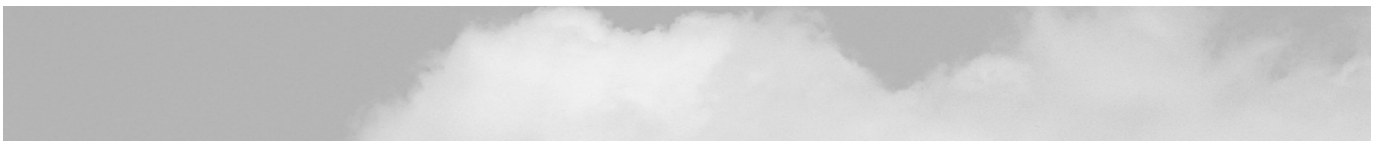
The Air Compliance Management Division will be comprised of Technical Management, Enforcement, Asbestos, and Source Evaluation.

The Engineering Services Division added another section.

These changes to the Bureau's organization were initiated to:

Prepare for the future with anticipated growth in activity for the areas of planning and transportation issues and toxics.

Place sections that have common interaction/technical support with the rest of the Air Program in the same division.



Maintain the Asbestos section as part of the compliance/ enforcement structure.

Provide for divisions of similar size (27 to 34 staff), thus eliminating the need for an assistant director position.

Align TRI activities with sections related to arit toxics and emissions inventory.

In the most recent organizational change, DHEC's public health and environmental quality control offices restructured to consolidate 12 districts around the state into eight regions. The regions provide environmental quality control (EQC) services just as the districts did. See Appendix D for a complete listing of the counties in each region (EQC Environmental Services).

REGULATORY HISTORY

Introduction

This section of the South Carolina Air Program's Report summarizes the important regulations that DHEC's Bureau of Air Quality has been working on in recent years.

NO_x SIP Call

On October 27, 1998, the EPA finalized a Nitrogen Oxides (NOx) State Implementation Plan (SIP) Call Rule. According to the EPA, the purpose of the rule is to reduce the regional transport of ground-level ozone through reductions in NOx. This rule, commonly referred to as the NOx SIP Call, requires reductions of NOx emissions from sources in South Carolina and comparable reductions from certain other states. It also requires states to identify pollution-reduction measures and to develop a plan to achieve these reductions. NOx is one of the precursors of ozone pollution. The EPA believes that NOx emitted from sources in South Carolina and certain other states significantly contribute to non-attainment of the 1-hour national standard for ozone in "downwind" states.

South Carolina's NOx SIP Call Regulations were approved by the state legislature and became effective upon publication in the *State Register* on May 24, 2002. The EPA gave final approval to the plan in a notice published in the *Federal Register* on June 28, 2002. In accordance with this plan, certain sources in South Carolina are required to reduce their NOx emissions during the ground-level ozone season beginning in 2004.

Each state subject to the NOx SIP Call regulation has a NOx budget that the state allocates to applicable sources. The budget is based on cost-effective reductions in emission applied to utilities and large industrial boilers. South Carolina's state trading program budget, as specified in Regulation 61-62.96, *Nitrogen Oxides (NOx) Budget Trading Program*, is 19,678 tons. (http://www.scdhec.net/eqc/baq/html/noxsip.html; www.epa.gov)

8-Hour Ozone Standard

On July 18, 1997, EPA revised the national ambient air quality standards (NAAQS) for ozone. The previous standard was referred to as the 1-hour standard. A violation of the 1-hour standard occurs when the 1-hour daily maximum concentration exceeds 0.12 ppm more than once in three consecutive years. The new standard is more stringent and is referred to as the 8-hour standard. Under the 8-hour standard a violation occurs when the three-year average of the fourth highest daily maximum 8-hour average exceeds 0.08 ppm.

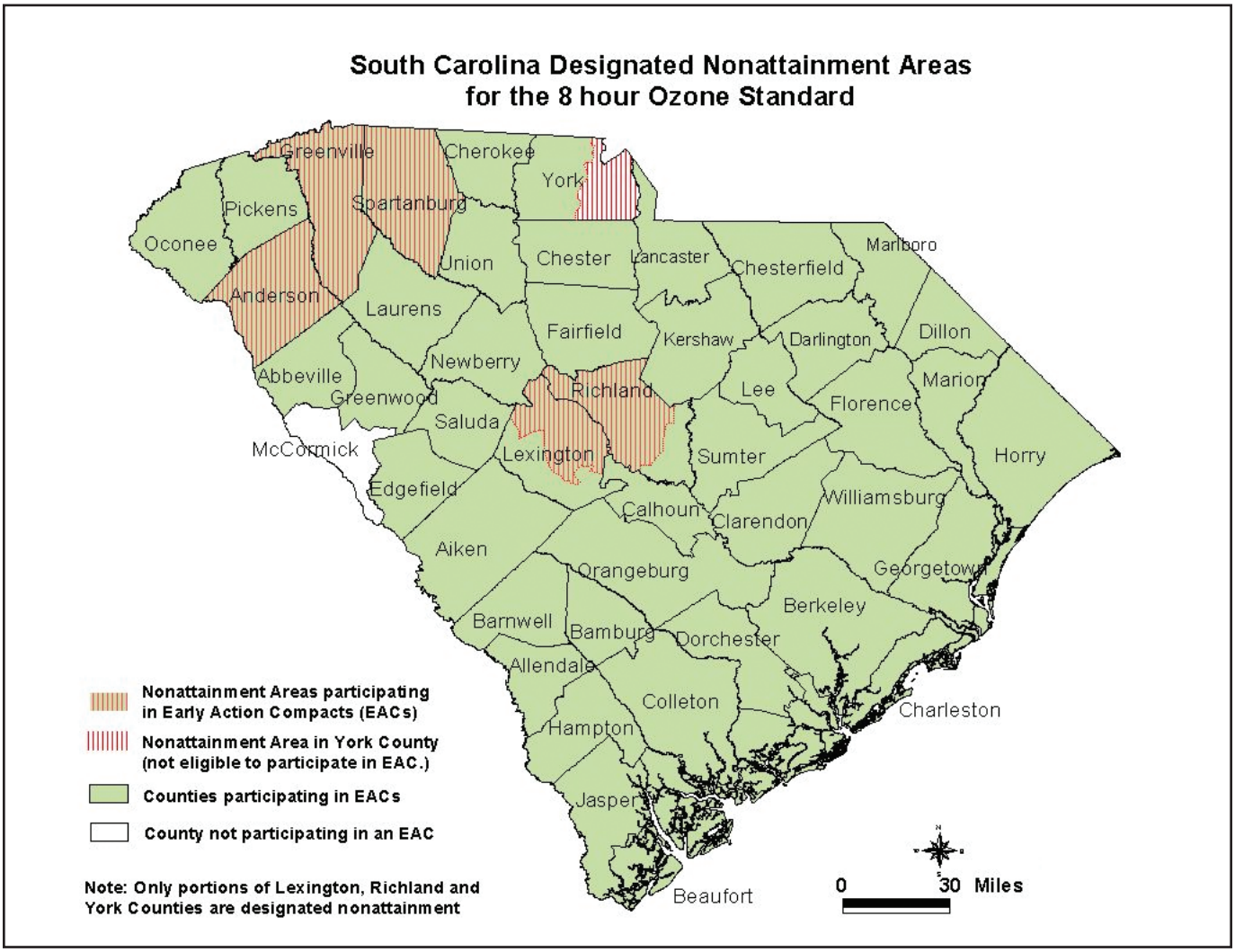
In recent years, all areas of South Carolina have been in attainment with the 1-hour ozone standard. In fact, for many years South Carolina was one of only 15 states meeting all the NAAQS. However, several areas of the state now have monitors showing violations of the more stringent 8-hour level.

After many years of litigation, EPA finally promulgated designation and classifications on April 30, 2004, for every area in the United States not meeting the NAAQS

for 8-hour ozone. Also included in the final rule, the EPA set September 30, 2005, as the first deferral of the effective date for non-compliance areas that have met Early Action Compact milestones through March 31, 2004. (See discussion below.)

The areas designated as non-attainment in South Carolina for 8-hour ozone are Anderson, Greenville, Spartanburg, part of York, part of Richland, and part of Lexington counties. The parts of Lexington and Richland counties, along with Anderson, Greenville and Spartanburg counties, are classified as basic non-attainment areas. Basic non-attainment areas have to comply with the more general non-attainment requirements of the Clean Air Act (CAA). The part of York County is classified as a moderate non-attainment area. Non-attainment areas with classifications higher than marginal (moderate, serious, severe and extreme) must meet additional requirements. They also have later attainment deadlines. (See "S.C. Designated Nonattainment Areas" map)

Note: This map is based on 2004 monitoring data and a primary ozone NAAQS of 0.08ppm.



Also on April 30, 2004, EPA published Phase 1 of the 8-hour ozone implementation rule, addressing such issues as classifications for 8-hour areas, revocation of the 1-hour standard, anti-backsliding principles, attainment dates and the timing of emissions reductions. Phase 2 of the final 8-hour ozone implementation rule will address, among other things, reasonably available control measures, reasonably available control technology, attainment demonstrations and modeling requirements.

Early Action Compacts

On August 22, 2002, DHEC published a Notice of Drafting in the *State Register* announcing its intent to pursue Early Action Compacts (EAC) for the 8-hour ozone standard. Through the EAC process, local, state, and EPA officials commit to working together to develop and implement plans that will reduce ozone pollution so that areas are attaining the 8-hour ozone standard earlier than would be required by the Clean Air Act. Only areas that are attaining the 1-hour ozone standard are eligible to participate in the EAC process. The compact requires these areas to attain the 8-hour ozone standard by December 31, 2007, a date that is sooner than would otherwise be required through the traditional non-attainment designation process.

At the end of 2002, 45 of South Carolina's 46 counties, DHEC, and EPA Region 4 had signed compacts to implement ozone reduction strategies earlier than federally required. Statewide stakeholder groups involving local and federal governments, industry, environmental groups, and other interested parties have worked together to plan and implement strategies for ozone pollution prevention throughout the state. Plans involve mobile source pollution reduction, outreach actions, and point source prevention, which provide flexibility and foster "homegrown" solutions.

The most important reasons for moving forward in this proactive manner are the public health benefits realized by meeting the new standard sooner than required and also the deferral of the effective date of a non-attainment designation.

As part of this process, the EAC stakeholders developed statewide regulations aimed at achieving additional reductions in ozone precursors. One new regulation that was developed as part of this process was Regulation 61-62.5, Standard 5.2, *Control of Oxides of Nitrogen (NOx)*. This is a broad-based regulation that applies statewide to new and existing stationary sources that emit NOx from fuel combustion and have not undergone a best available control technology (BACT) analysis for NOx. For new sources, the regulation requires the installation of control technology that is based on BACT standards found in the RACT/BACT/LAER clearinghouse. For existing sources, the regulation only applies when an applicable unit replaces their burner. At this point, they will be required to replace their burner with a low NOx burner or equivalent technology capable of achieving a 30 percent reduction from uncontrolled levels.

Also, as part of the EAC process, Regulation 61-62.2, *Prohibition of Open Burning*, was revised by deleting the exception for the burning of household trash, revising the exception for the burning of construction waste, and revising the exception for fires set for the purpose of firefighter training. The burning of household trash presents health and environmental concerns for many communities. The smoke generated from these activities is a nuisance to some and a health threat to others with asthma or other respiratory problems. With respect to the exception for the burning of construction waste, the regulation was revised to allow only residential construction waste to be burned outside the ozone season and this will only be allowed if it meets the provisions of the regulation. Finally, the exception for the purpose of firefighter training was revised to ensure that minimum health, environmental and safety concerns are addressed.

These regulations were approved by the Board of Health and Environmental Control in January 2004, and, in accordance with South Carolina law, they were subsequently submitted to the Legislature for approval. The South Carolina General Assembly approved the regulations, and the rules were published and became effective upon publication in the *State Register* on June 25, 2004.

In accordance with the EAC process, DHEC incorporated the statewide regulations and the local early action plans into the agency's Early Action SIP revision and submitted it to EPA in December 2004, for review and approval.

Regulation 61-62.5, Standard 3, Waste Combustion and Reduction

The primary purpose for revising this regulation was to establish consistent emission limits for industrial and utility boilers. DHEC also clarified the exemption for total reduced sulfur devices that burn other waste fuels and to allow for ash storage at air curtain incinerators in a manner consistent with R.61-107.12, *Solid Waste Management*. In addition, DHEC added an exemption on a case-by-case basis for renewable energy resources and for emission units and/or control devices that comply with federal maximum achievable control technology (MACT) standards.

The revisions became effective upon publication in the *State Register* on June 28, 2002.

Consolidated Emissions Reporting Rule

The EPA promulgated a final rule referred to as the Consolidated Emissions Reporting Rule (CERR) in the *Federal Register* on June 10, 2002. Pursuant to its authority under section 110 of Title I of the Clean Air Act, the EPA has long required SIPs to provide for the submission by states to EPA of emission inventories containing information regarding the emissions of criteria pollutants and their precursors. The purpose of the CERR is to simplify emissions reporting, establish new reporting requirements for PM2.5 (fine particulate matter) and NH3 (ammonia), and establish new requirements for the statewide reporting of area source and mobile source emissions.

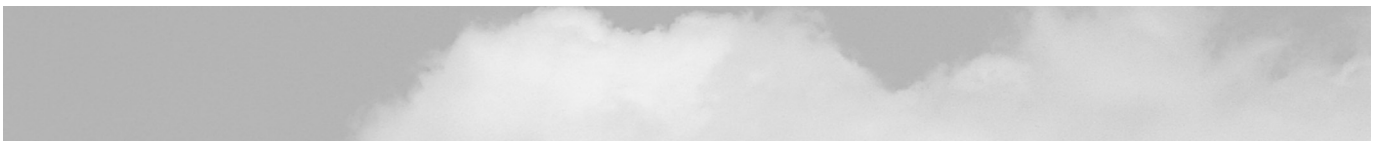
On February 25, 2005, DHEC published a final rule in the *State Register* to revise Regulation 61-62.1, *Definitions and General Requirements*, to incorporate the federal CERR requirements. The final rule streamlines the emissions reporting burden by reducing the frequency of reporting and allowing regulators focus on those sources with the greatest emissions. The regulations were also revised to streamline reporting for sources emitting hazardous air pollutants.

New Source Review

On December 31, 2002, the EPA finalized revisions governing the New Source Review (NSR) program. The major NSR program is a preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants. In areas not meeting health-based NAAQS, the program is referred to as the non-attainment NSR program. In areas meeting the NAAQS (attainment areas), the program is referred to as the Prevention of Significant Deterioration (PSD) program. Collectively, these programs are commonly referred to as the major NSR program.

In accordance with EPA's final rule revisions, state agency programs must adopt and submit revisions to their SIPs to include the minimum program elements outlined in the final rules. States may choose to adopt provisions that differ from the final rules; however, to be approvable under the SIP, the state must show that the regulation is at least as stringent as EPA's amendments. In accordance with these rules, states are required to adopt and submit revisions to their SIPs no later than January 2, 2006.

After a lengthy stakeholder process, DHEC submitted revisions to the Legislature in January 2005, to comply



with the EPA requirements. The revisions adopted by DHEC differ from the federal revisions in several key respects and have the effect of being more stringent than the federal rules. These revisions were approved by the General Assembly and became effective upon publication in the *State Register* on June 24, 2005. The final regulations promulgated amendments to regulations 61-62.1, *Definitions and General Requirements*, and 61-62.5, Standard 7, *Prevention of Significant Deterioration*, and also promulgated a new regulation, 61-62.5, Standard 7.1, *Non-attainment New Source Review.*

Regulation 61-86.1, Asbestos Fees, Standards of Performance for Asbestos Projects

The fee schedule for asbestos abatement projects and licenses had not been updated since being established in 1988. DHEC revised R.61-86.1 to help provide adequate funding for the asbestos program. South Carolina's fee schedule was expanded to add fees for the certification of asbestos training courses, which are required for licensing of asbestos abatement personnel and for the processing and inspection of demolition projects.

The revisions became effective upon publication in the *State Register* on May 24, 2002.

NESHAPs and MACT Standards

The 1970 Clean Air Act required the EPA to set emissions standards (that is, limits on how much of a pollutant could be emitted into the air by a source) for pollutants that can cause serious or irreversible health effects. Standards for these hazardous pollutants were to be "health-based" standards. In other words, the EPA was to establish a numerical limit that would protect human health from any adverse effects. Setting health-based standards is a difficult process because of the uncertainty in assessing health effects. As a result, health-based standards have been set for only eight pollutants. Standards for these pollutants are referred to as National Emissions Standards for Hazardous Air Pollutants (NESHAPs).

The 1990 Clean Air Act Amendments established a new approach for regulating hazardous air pollutants.

In revising the Clean Air Act, Congress specifically listed 189 compounds as hazardous air pollutants (one pollutant, caprolactum, was subsequently dropped from the list, but South Carolina elected to retain it). The EPA was directed to develop technology-based Maximum Achievable Control Technology Standards (MACT) for all these pollutants. This list includes pollutants that are known or suspected to cause cancer and other adverse health effects. In 1992, the EPA published an initial list of source categories for which air toxics emission standards are to be promulgated and, based on the list, began developing rules that require maximum achievable control technology, considering cost and other factors.

In 1995, the EPA delegated authority to South Carolina to implement the MACT Standards as they became effective. Since that time, DHEC has been updating the state regulations to incorporate new MACT Standards about once a year. Between 1990 and 2000, the EPA promulgated approximately 50 MACT Standards. Between 2001 and 2004, the EPA promulgated approximately 45 additional MACT standards. The total number is now over 95 standards.

For current regulatory information, visit http://www.scdhec.gov/environment; click the "Air Quality" link, then click "Regulatory" on the BAQ Menu.

SOUTH CAROLINA'S AIR QUALITY STATUS

Air is a part of the environment we all have contact with. Materials in the air, from pollen to pollution, impact us directly through the air we breathe and indirectly by affecting the quality of our land and water resources. Until April, 2004, South Carolina consistently met all national air quality standards. Since we have enjoyed

such good air quality for so long, most South Carolinians do not consider what it means to meet these standards.

With the passage of more stringent air regulations come constant challenges for industry to limit or reduce their emissions. Health effects of air pollution can vary depending on the concentration level, duration and the pollutant. Air pollution is also harmful to the environment. Specific environmental effects of air pollution include damage to vegetation, reduced crop yields, increased corrosion of metals, and deterioration of stone and paint on buildings, cars and cultural landmarks.

Ultimately, air pollution could affect South Carolina economically. Our state is well-known for beautiful landscapes. Many visitors cross our borders each year and support the tourism industry. We want to be certain these natural resources are preserved so that tourists will continue to make South Carolina a destination of choice. Furthermore, failing to meet air quality standards could make it difficult to attract new industry to the state, resulting in reduced investment and employment opportunities.

AIR QUALITY MONITORING NETWORK

South Carolina operates a network of samplers and monitors to measure the concentrations of primary pollutants and other compounds that impact air quality. In 2001, there were 142 samplers and monitors at 55 sites that measured and tracked the quality of our air. In 2002, there were 142 samplers and monitors at 64 sites. In 2003, there were 173 samplers and monitors at 59 sites. In 2004 there were 147 samplers and monitors at 58 sites. Selecting monitoring sites is a joint decision between the EPA and DHEC's Bureau of Air Quality. Any sampling network that monitors air quality needs to provide information that answers several questions:

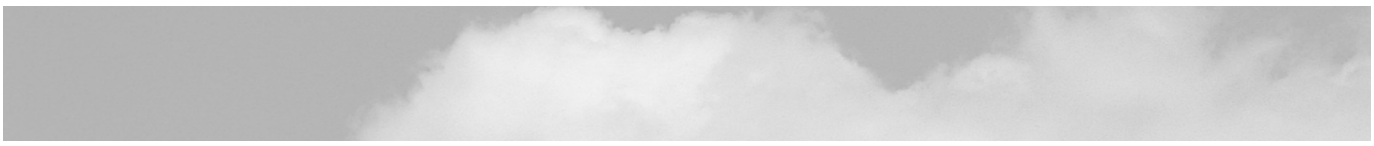
- **What are the pollutant concentrations where people live?** Much of the monitoring takes place in and around urban areas where there are the greatest number of people and air pollution sources. However, monitors are also placed in rural and agricultural areas to track how pollution impacts people across the state.

- **What is the impact of a specific source or category of sources?** Some monitoring takes place at sites where the sources of air pollution are expected to have the greatest impact.

- **What are the background concentrations?** The pollutant concentrations in areas where there are few sources or areas that are nearly pristine provide a baseline for data collected over the rest of the network. This data also provides information about the long-range transport of pollutants.

Each site and monitor or sampler that is part of the network collects data that is intended to be representative of the pollutant concentrations over a certain area. This is the scale of the monitor. These range from a microscale for pollutant concentrations that change significantly over small distances (less than 100 meters) to a regional scale where concentrations are fairly consistent for 40 kilometers or more.

The combination of scale and distribution of the samplers describes the representativeness of the monitoring data, or the confidence that the data adequately represents those areas where there is no monitoring. Monitoring data not only needs to be representative across the state,



but throughout the year. To make decisions based on the data, we must be confident that highs and lows have been accounted for and that the data is not biased. The quality of the data is assured through regular evaluations that include calibrations and audits of the equipment, co-located samplers, redundant data acquisition, and additional audits by independent sources.

After quality assurance is complete, all data is put into the EPA's Aerometric Information Retrieval System (AIRS), a national database. Data that is of uncertain quality is not used. In general, 75 percent of the data must be available to adequately represent the pollution concentration at a site. This data can be accessed at http://www.epa.gov/air/data.

Appendix A contains summary monitoring data for 2001 through 2004, including percent data completeness by monitor and parameter.

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

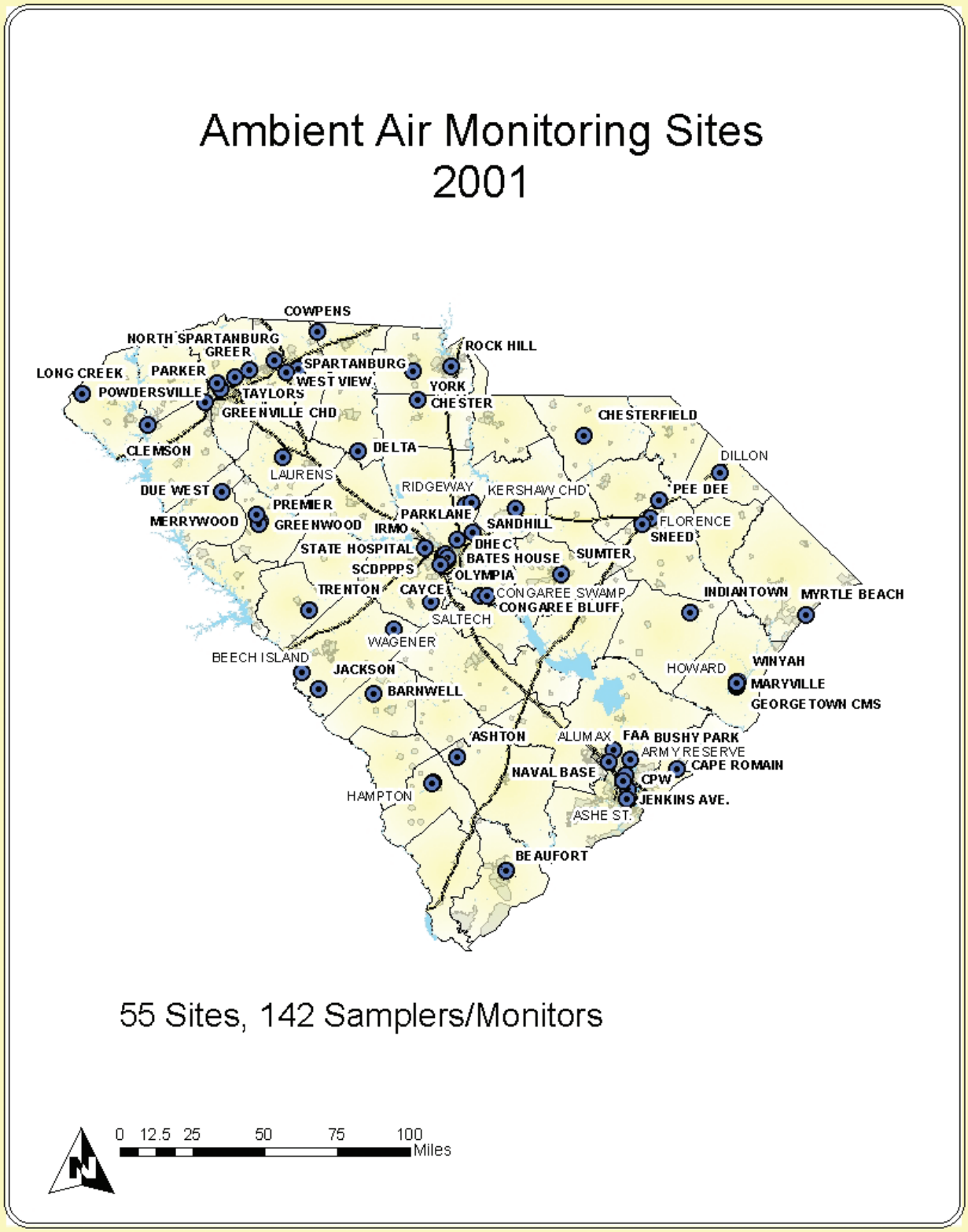
As previously mentioned, the EPA is responsible for setting National Ambient Air Quality Standards for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. Primary standards are established to protect public health of sensitive populations such as asthmatics, children and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation and buildings. The six principal pollutants for which there are National Ambient Air Quality Standards are often referred to as "criteria pollutants" and include ozone (O3), lead (Pb), particulate matter (PM10 or PM2.5), sulfur dioxide (SO2), nitrogen oxides (NOX), and carbon monoxide (CO). These pollutants are described and discussed in the following pages. The purpose of these standards is to establish the concentrations that are protective of the public. In states with areas that exceed any of these standards, the area can be designated non-attainment for that particular standard. South Carolina currently meets, and has met since the early 1990s, all national ambient air quality standards.

Each year, the EPA examines changes in levels of these pollutants over time and summarizes the current air pollution status.

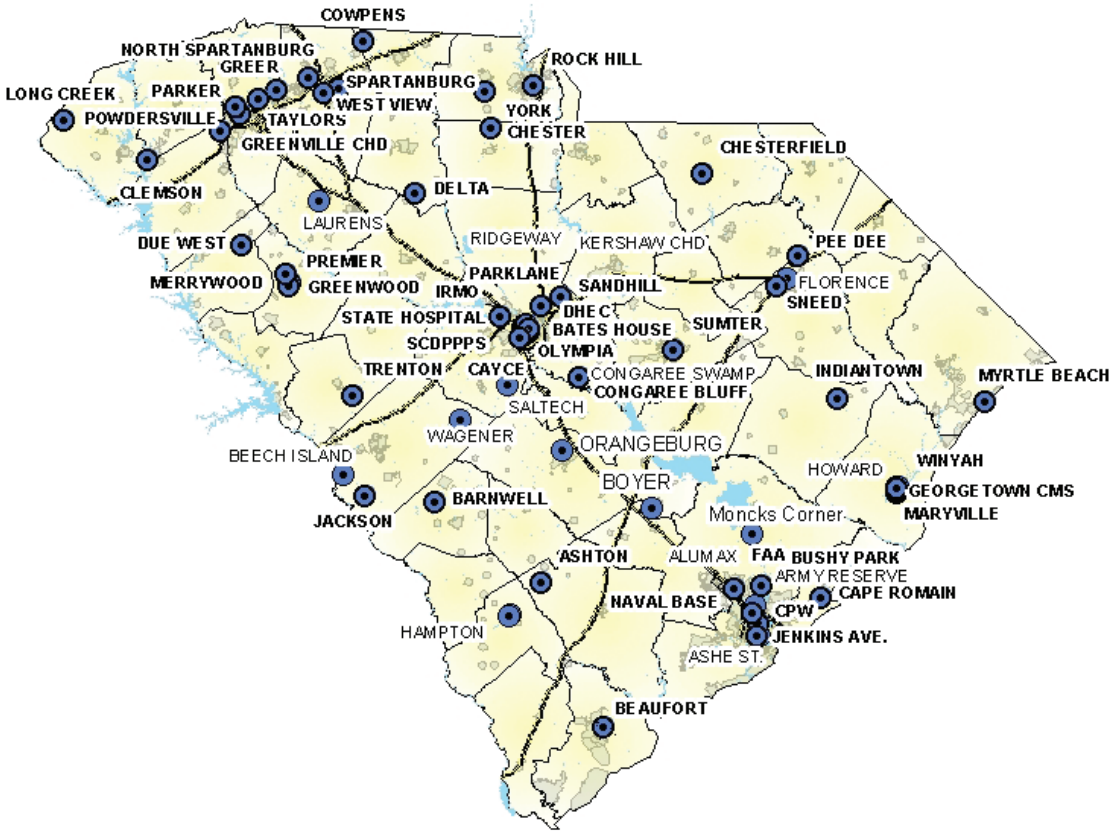
Even with the increased population and growth, there has been no significant increase in any of the six criteria pollutants.

TOTAL MONITORS FOR:				
Year	2001	2002	2003	2004
Parameter	Primary	Primary	Primary	Primary
CO	3	3	4	4
NO2	8	8	8	8
SO2	11	11	11	11
OZONE	22	23	22	23
LEAD	27	32	25	20
PM10	17	18	18	18
PM25	22	22	23	24

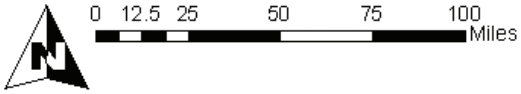
Primary: Excludes all duplicates and multiple monitors for parameter

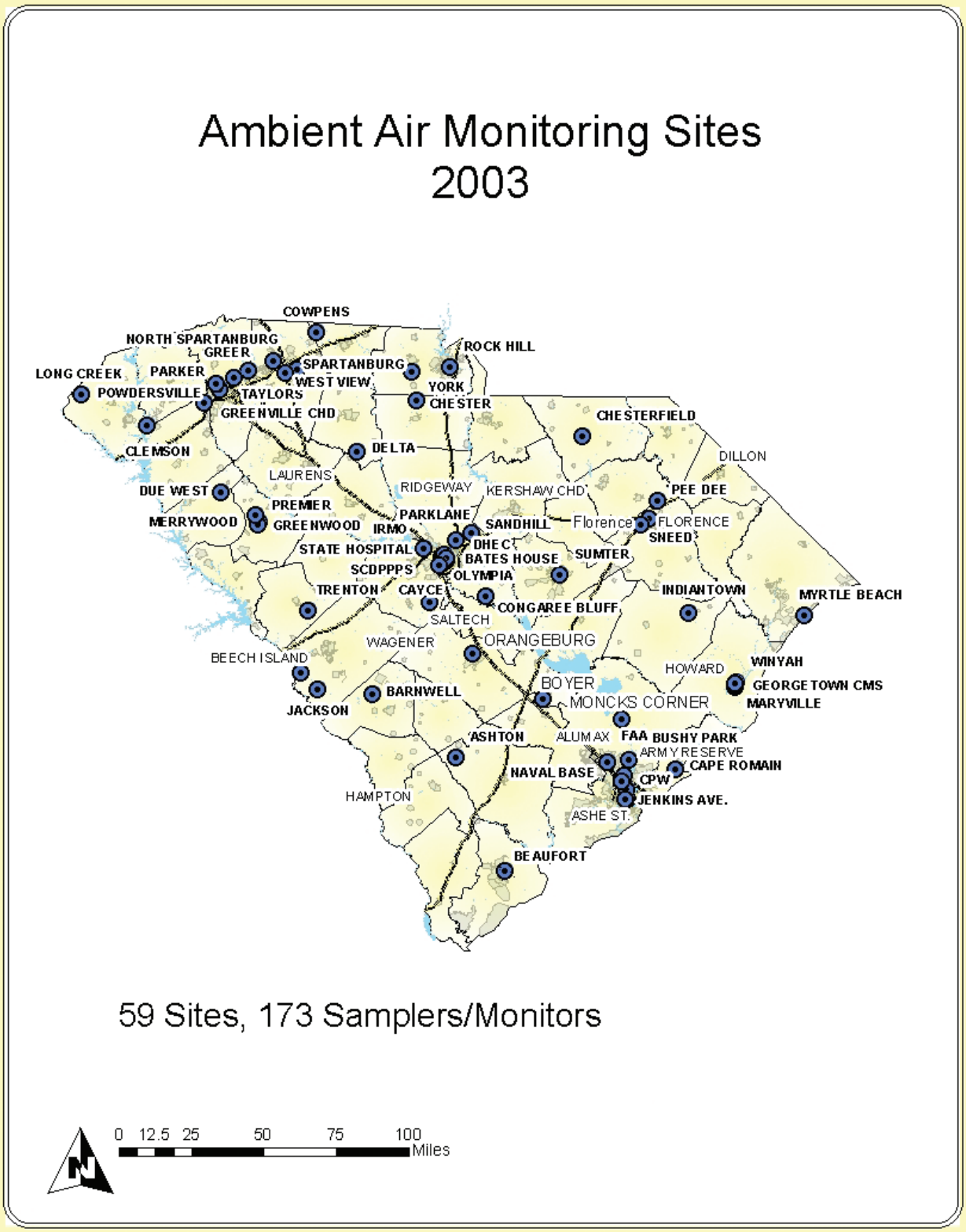

Ambient Air Monitoring Sites
2001
COWPENS
NORTH SPARTANBURG
GREER
SPARTANBURG
ROCK HILL
LONG CREEK
PARKER
WEST VIEW
YORK
POWDERSVILLE
TAYLORS
CHESTER
GREENVILLE CHD
CHESTERFIELD
CLEMSON
DELTA
DILLON
LAURENS
RIDGEWAY
KERSHAW CHD
PEE DEE
DUE WEST
PREMIER
PARKLANE
SANDHILL
FLORENCE
MERRYWOOD
GREENWOOD
IRMO
SNEED
STATE HOSPITAL
DHEC
SUMTER
BATES HOUSE
SCDPPPS
OLYMPIA
TRENTON
CAYCE
CONGAREE SWAMP
INDIANTOWN
MYRTLE BEACH
CONGAREE BLUFF
SALTECH
WAGENER
BEECH ISLAND
HOWARD
WINYAH
JACKSON
MARYVILLE
BARNWELL
GEORGETOWN CMS
ASHTON
ALUMAX
FAA
BUSHY PARK
ARMY RESERVE
CAPE ROMAIN
NAVAL BASE
CPW
HAMPTON
JENKINS AVE.
ASHE ST.
BEAUFORT
55 Sites, 142 Samplers/Monitors
0 12.5 25 50 75 100
Miles

Ambient Air Monitoring Sites 2002



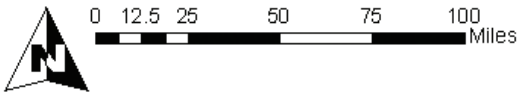
64 Sites, 142 Samplers/Monitors

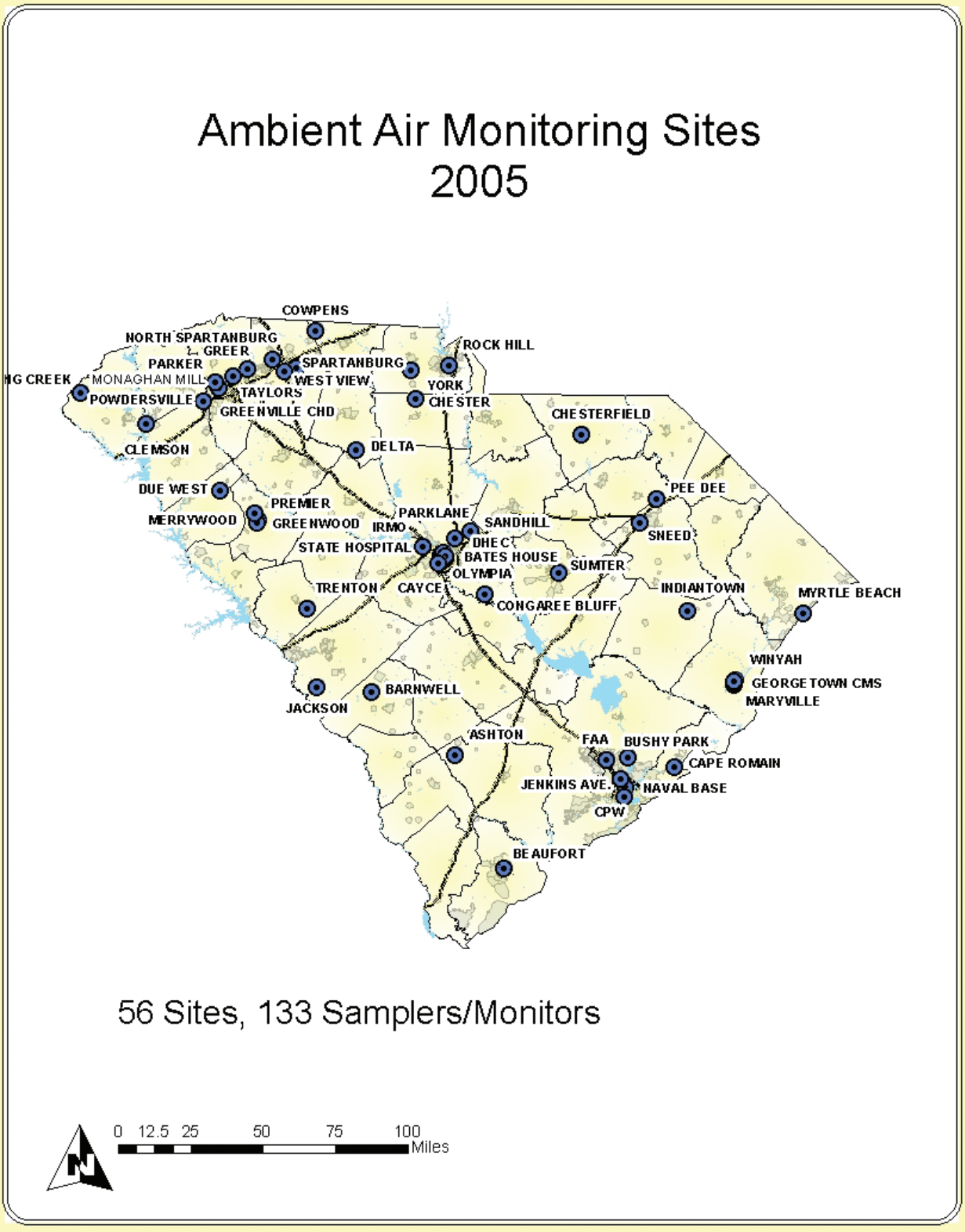



Ambient Air Monitoring Sites
2003
COWPENS
NORTH SPARTANBURG
GREER
ROCK HILL
LONG CREEK
PARKER
SPARTANBURG
WEST VIEW
YORK
POWDERSVILLE
TAYLORS
CHESTER
GREENVILLE CHD
CHESTERFIELD
CLEMSON
DELTA
DILLON
LAURENS
RIDGEWAY
KERSHAW CHD
DUE WEST
PEE DEE
PREMIER
PARKLANE
SANDHILL
Florence
FLORENCE
MERRYWOOD
GREENWOOD
IRMO
SNEED
STATE HOSPITAL
DHEC
SUMTER
BATES HOUSE
SCDPPPS
OLYMPIA
TRENTON
CAYCE
INDIANTOWN
MYRTLE BEACH
CONGAREE BLUFF
SALTECH
WAGENER
ORANGEBURG
BEECH ISLAND
WINYAH
HOWARD
BOYER
GEORGETOWN CMS
BARNWELL
MONCKS CORNER
MARYVILLE
JACKSON
ASHTON
ALUMAX
FAA
BUSHY PARK
ARMY RESERVE
CAPE ROMAIN
NAVAL BASE
CPW
HAMPTON
JENKINS AVE.
ASHE ST.
BEAUFORT
59 Sites, 173 Samplers/Monitors
0 12.5 25 50 75 100
Miles

Ambient Air Monitoring Sites 2004

58 Sites, 147 Samplers/Monitors




Ambient Air Monitoring Sites
2005
COWPENS
NORTH SPARTANBURG
GREER
PARKER
SPARTANBURG
ROCK HILL
NG CREEK
MONAGHAN MILL
WEST VIEW
YORK
POWDERSVILLE
TAYLORS
CHESTER
GREENVILLE CHD
CHESTERFIELD
CLEMSON
DELTA
DUE WEST
PEE DEE
PREMIER
MERRYWOOD
GREENWOOD
PARKLANE
SANDHILL
IRMO
SNEED
STATE HOSPITAL
DHEC
BATES HOUSE
SUMTER
OLYMPIA
TRENTON
CAYCE
INDIANTOWN
MYRTLE BEACH
CONGAREE BLUFF
WINYAH
GEORGETOWN CMS
BARNWELL
MARYVILLE
JACKSON
ASHTON
FAA
BUSHY PARK
CAPE ROMAIN
JENKINS AVE.
NAVAL BASE
CPW
BEAUFORT
56 Sites, 133 Samplers/Monitors
0 12.5 25 50 75 100
Miles

1 GROUND-LEVEL OZONE (O_3)

Nature and Sources of the Pollutant

Ozone is a colorless, nearly odorless, toxic gas. In the upper atmosphere (stratosphere), ozone protects us from the sun's damaging ultraviolet light, but at ground level, ozone is unhealthy. Ground-level ozone is formed by a reaction between volatile organic compounds (VOCs) and oxides of nitrogen (NOx) when they are exposed to sunlight. NOx and VOCs are emitted from a variety of sources, including motor vehicles, chemical plants, refineries, factories, consumer and commercial products and other industrial sources. While ozone occurs naturally in the stratosphere and provides a protective layer high above Earth, sunlight "cooks" VOCs and NOx, creating ground-level ozone.

Health and Environmental Effects

Short term (one to three hours) and prolonged (six to eight hours) exposure to ground-level ozone has been linked to a number of health effects. For example, for people who are more susceptible to respiratory infections, exposure to ozone can result in lung inflammation and aggravate pre-existing respiratory diseases such as asthma, emphysema and bronchitis. Increased hospital admissions and emergency room visits for respiratory problems have been associated with ground-level ozone exposures. These health effects generally occur while people are working, exercising or playing outdoors. Children who are active outdoors during the summer when ozone levels are at their highest are most at risk for experiencing such effects. Longer-term exposure to moderate levels of ozone present possibly irreversible changes in the lung structure. The changes could lead to premature aging of the lungs and worsen chronic respiratory illnesses.

Ozone also affects vegetation and ecosystems, leading to reductions in agricultural and commercial forest yields and reduced growth and survivability of tree seedlings. Ground-level ozone damage to the foliage of trees and other plants can also decrease the aesthetic value of ornamental species, as well as the natural beauty of our parks and recreation areas.

Ground-level Ozone

On July 18, 1997, EPA revised the national ambient air quality standards (NAAQS) for ground-level ozone. A violation of the previous 1-hour standard occurred when the 1-hour daily maximum concentration for ground-level ozone exceeded 0.12ppm more than once in three consecutive years. During the period of 1990-2004, all areas of South Carolina were in attainment with the 1-hour ozone standard.

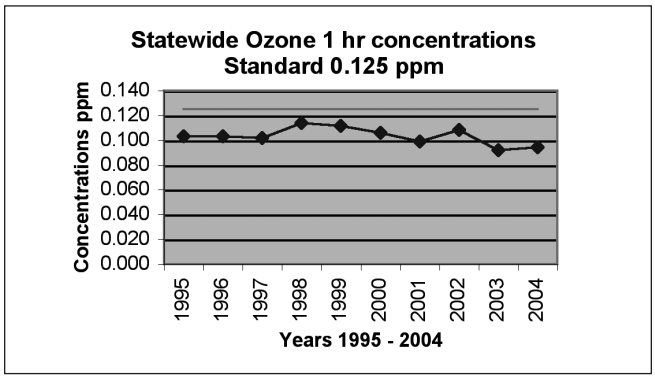
Under the new ground-level ozone standard, a violation occurs when the three-year average of the fourth highest daily maximum 8-hour average exceeds 0.08ppm. This standard is more stringent than the previous 1-hour standard. In fact, several areas of the state have had monitors showing difficulty attaining the 8-hour standard. Based upon monitoring data from 2001-2003, EPA promulgated designation and classifications on April 30, 2004, for every area in the United States not

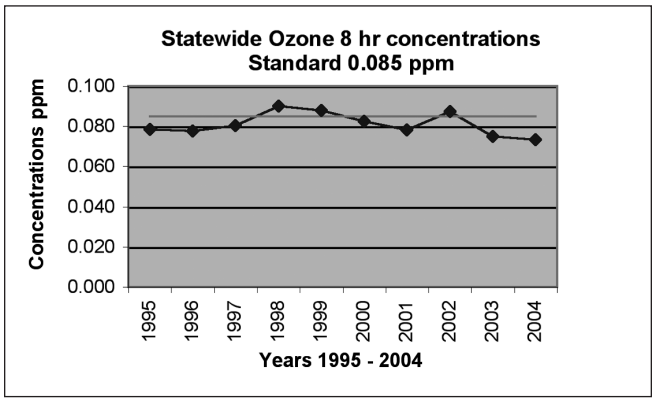
meeting the 8-hour ozone standard. In South Carolina a portion of York County was designated "nonattainment," along with the greater Charlotte, North Carolina area. In addition, Anderson, Greenville, and Spartanburg counties were designated together in the Upstate, while portions of Lexington and Richland counties were designated in the Midlands.

Only the designated portion of York County is currently subject to prescriptive federal requirements for nonattainment areas. The Upstate and Midland nonattainment areas are participating in an accelerated attainment process called Ozone Early Action Compacts. This process removes the federal prescriptive requirements as long as the areas implement a plan that demonstrates attainment with the 8-hour ozone standard sooner than they would have otherwise been required.

See the "Regulatory Development History" section for reference and more information.

Trends in Ozone Levels





2 PARTICULATE MATTER (PM)

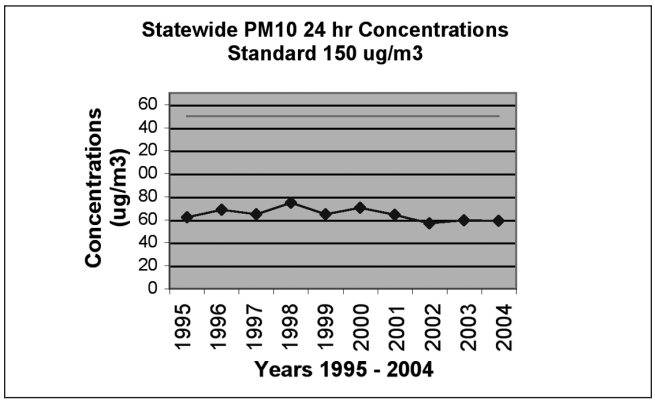
Nature and Sources of the Pollutant

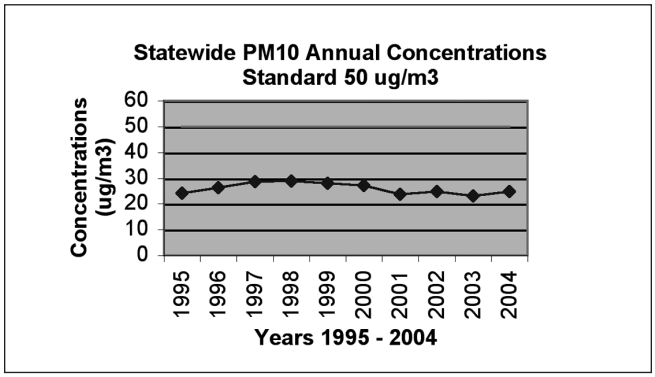
Particulate matter (PM) is the general term used for a mixture of solid particles and liquid droplets found in the air. Some particles are large or dark enough to be seen as soot or smoke, while others are so small they can be detected only with an electron microscope. Currently there are two standards for particulate matter, PM_{10} and $PM_{2.5}$. Both have their own annual and 24-hour standards. PM_{10} refers to particles with a diameter of 10 microns (a micron is one-millionth of a meter) or less. One thousand particles of this size could fit into the period at the end of this sentence. PM_{10}, also referred to as "coarse particulate," is composed largely of primary particles. It comes from a wide variety of stationary, mobile, and natural sources. For example, power production, cement manufacturing, combustion sources, fireplaces, diesel trucks, and forest fires are all sources of particulate emissions. In 1997, the EPA revised the PM standard by adding an indicator for $PM_{2.5}$. $PM_{2.5}$ is referred to as particles with a diameter of 2.5 microns or less. In comparison, human hair has a diameter of 70 microns. $PM_{2.5}$, also referred to as "fine particulate," is composed mostly of secondary particles, and also comes from the same sources as PM_{10}. The chemical composition of particles depends on location, time of year, and weather.

Health and Environmental Effects

Particulate matter includes both coarse and fine particles. When inhaled, particles can accumulate in the respiratory system and are associated with numerous health effects. Exposure to coarse particles is primarily associated with the aggravation of respiratory conditions, such as asthma. Fine particles are most closely associated with such health effects as increased hospital admissions and emergency room visits for heart and lung disease, increased respiratory disease and symptoms such as asthma, decreased lung function, and even premature death. Sensitive people who appear to be at the greatest risk to these effects include the elderly, individuals with cardiopulmonary disease such as asthma, and children. In addition to these reported health effects, particulate matter is the major cause of reduced visibility. Airborne particles can also impact vegetation and ecosystems and can cause damage to paints and building materials.

Trends in PM_{10} Levels





There are two national measurement standards for PM_{10}. Each standard covers both primary and secondary concerns. One is an annual arithmetic mean of 50 µg/m3 and the other is a 24-hour average of 150 µg/m3. The annual arithmetic mean is used to look at long-term concentrations in the ambient air, while the 24-hour standard is set to measure short-term concentration

levels. Any short-term spikes in ambient concentrations are likely attributable to a source--specific event and thus, are immediately corrected.

During the past 10 years, the statewide average maximum annual arithmetic means have ranged from a low 23µg/m3 in 2003 to a high of 29µg/m3 in 1997 and 1998.

Short term exposure to PM_{10} is represented by a 24-hour measurement and longer exposures by an annual average of the daily measurements. For PM_{10} the primary and secondary standards are the same, set at a maximum of 150 µg/m3 for any day and an average of 50 µg/m3 over the year. The standards are designed to take into account unusual occurrences by averaging the high concentrations over three years.

The daily concentrations of particulate are based on the average concentration measured over 24 hours, midnight to midnight. It is rare that any concentrations measure over the standard of 150 µg/m3. Occasions where high concentrations have been detected have most often been associated with unusual conditions (for example, smoke associated with a wildfire, or dry and windy weather). In those areas where high concentrations have occurred more often, DHEC has worked with local facilities and governments to lower concentrations and avoid violating the standard.

The concentration of PM_{10} has generally been consistent from year to year, but there does appear to be a slight decrease in the average concentrations. These occur on both the cleanest and dirtiest days over the last 10 years.

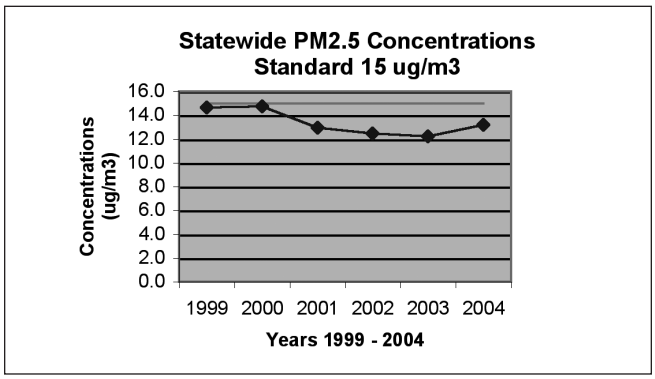
Trends in PM2.5 Levels

The EPA promulgated a new Fine Particulate Matter National Ambient Air Quality Standard ($PM_{2.5}$) in 1997. The delay in implementation is because areas needed to collect three years of monitoring data on which EPA could determine attainment.

The Clean Air Act Section 107(d)(1) requires each state to submit to the EPA its recommended designation of each area of the state as attainment/unclassifiable or non-attainment under the new standard. On February 13, 2004, DHEC submitted a recommendation of attainment for the entire state based on complete and quality assured data for the years 2001, 2002 and 2003.

On June 29, 2004, EPA notified South Carolina of its intent to make modifications to the State's recommendation of attainment areas for the fine particulate ($PM_{2.5}$) standard. EPA stated that while the Greenville EQC, Greenville County, monitor had not been in operation for three calendar years, it had the potential to violate the $PM_{2.5}$ standard. Therefore, EPA has recommended that Greenville, Anderson and Spartanburg counties be designated as unclassifiable until additional data has been collected and analyzed.

On December 17, 2004, DHEC received notice from the EPA that Anderson, Greenville and Spartanburg counties were designated as "unclassifiable" for the EPA $PM_{2.5}$ Annual Standard.



3 NITROGEN DIOXIDE (NO_2)

Nature and Sources of Pollutant

Nitrogen Dioxide (NO_2) is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). Nitrogen Oxides (NO_X) is the term used to describe the sum of NO, NO_2, and other oxides of nitrogen. They play a major role in the formation of ozone, particulate matter, haze and acid rain. The major source of man-made NO_X emissions is the high temperature combustion process of automobiles, trucks and power plants. Home heaters and gas stoves can also produce substantial amounts of NO_2 indoors.

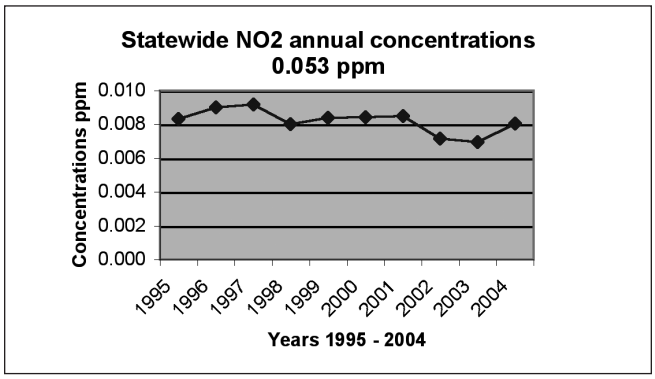
Health and Environmental Effects

Short-term exposure (less than three hours) to low levels of NO_2 may impede lung function in people with pre-existing respiratory illnesses and increase respiratory illnesses in children ages 5-12. Long-term exposure may lead to increased susceptibility to respiratory infections and may cause lung disease. NO_2 may also contribute to the aggravation of heart disease. Nitrogen oxides react in the air to form ground-level ozone and fine particle pollution, which are both associated with adverse health effects.

The major environmental effect is the formation of acid rain. Acid rain is harmful to some species of vegetation, fish and other aquatic life. It also contributes to the corrosion of statues and monuments.

By itself, the effects of NO_2 are more of a chronic concern; however, the short term mixing of NO_2 with VOCs can lead to the formation of ground-level ozone.

Trends in NO2 Levels



There is only one national standard for nitrogen dioxide (NO_2). It covers both primary and secondary concerns. The NO_2 standard is an Annual Arithmetic Mean (AAM) of 0.053ppm. Since 1995, the statewide average values have remained in the range of 0.007ppm to 0.009ppm. South Carolina is well within the limits of the national standard for NO_2.

4 CARBON MONOXIDE (CO)

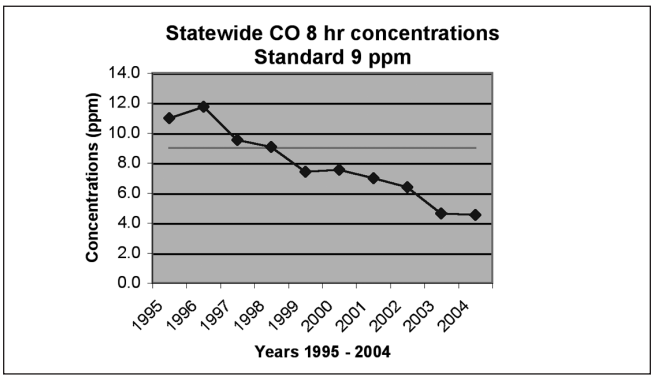
Nature and Sources of the Pollutant

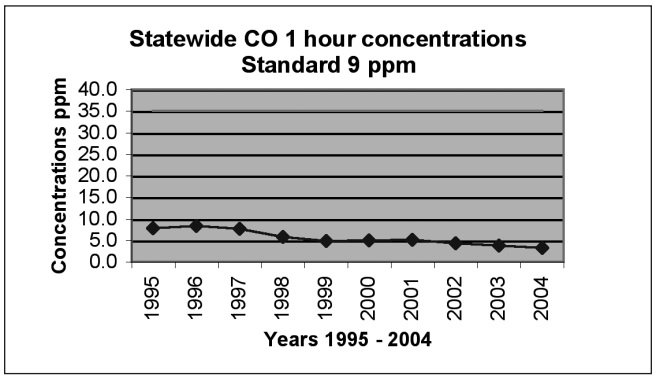
Carbon monoxide (CO) is a colorless and odorless gas which is formed when carbon in fuel is not completely burned. It is the component of motor vehicle exhaust which constitutes about 60 percent of all CO emissions nationwide. High concentrations of CO emissions may come from larger cities where heavy traffic occurs. Other sources of CO emissions include industrial processes, non-transportation fuel combustion and natural sources, such as wildfires. Peak CO concentrations occur more frequently during the colder months, when CO emissions are trapped near the ground beneath a layer of warm air.

Health and Environmental Effects

CO enters the bloodstream through the lungs and reduces the amount of oxygen delivered to the body's organs and tissue. The most serious health effect to people who suffer from cardiovascular disease is elevated CO levels. Higher levels of CO exposure can be poisonous, and even healthy people may be affected. Visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability and difficulty in performing complex tasks are all associated with high CO level exposure.

Trends in CO Levels





There are two primary national standards for CO. The standards are an 8-hour average of 9ppm and a 1-hour average of 35ppm. The 8-hour standard is used to look at the lingering quantities of CO in the ambient air while the 1-hour standard measures the acute presence of CO. For South Carolina, CO emissions have not been a major concern due to both the meteorological and topographical factors prevalent in our state. There is no secondary national standard for CO.

Since 1995, the statewide average concentrations for the 8-hour standard have ranged from a high of 11.7ppm in 1996 to a low of 4.6 ppm in 2004. The trend has been decreasing over the last 10 years. Also, during the same 10-year period, the statewide average concentrations for the 1-hour standard have ranged from a low of 3.3ppm in 2004 to a high of 8.3ppm in 1996. Overall, CO emissions decreased steadily during the last 10 years due in part to more efficient combustion practices from both industry and mobile sources.

5 LEAD (PB)

Nature and Sources of the Pollutant

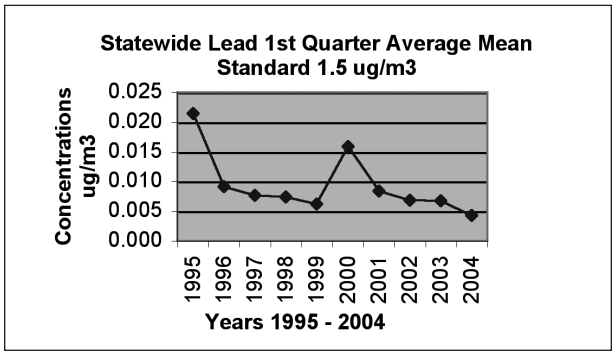
Lead (Pb) is a solid metal that can be found in air in a dust-like form called particulate matter. In the past, automobile sources were the major contributor of lead emissions. Because of the EPA's regulatory efforts in the 1980s and 1990s to eliminate the content of lead in gasoline, air emissions of lead from mobile sources have declined over the past decade. Today, industrial processes (primarily metals processing) are the major source of lead emissions. The highest air concentrations of lead are found in the vicinity of smelters and battery manufacturers. Lead can also be found in paint used in older houses. Lead paint was banned from residential application in 1978.

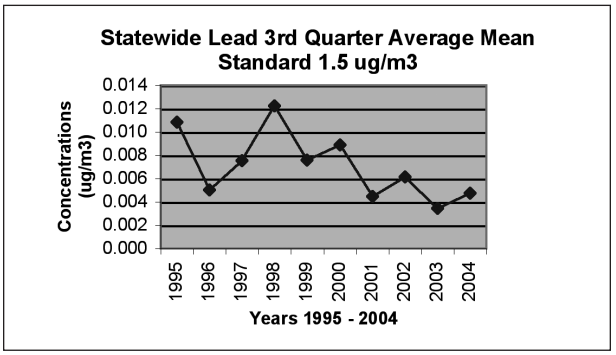
Health and Environmental Effects

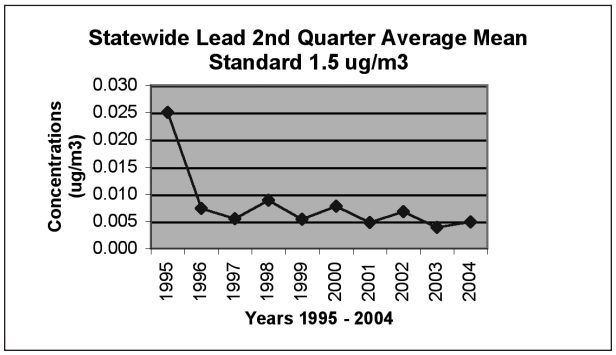
Lead exposure occurs mainly through inhalation of air and ingestion of lead in food, water, soil or dust. It accumulates in the blood, bones and soft tissues. It can adversely affect the kidneys, liver, nervous system and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation and behavioral disorders. Recent studies have shown that lead may be a factor in high blood pressure and subsequent heart disease. Lead can also be deposited on the leaves of vegetation, presenting a hazard to grazing animals.

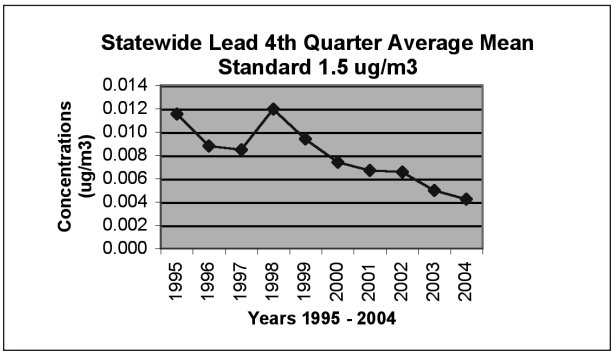
Trends in Pb Levels

There is only one national standard for lead, and it covers both primary and secondary concerns. The lead standard is a quarterly average of 1.5 µg/m3. The maximum quarterly average has ranged from 0.01 µg/m3 to 0.81 µg/m3. Lead measurements between 1993 and 1995 were slightly elevated. The major peak occurred during the fourth quarter in 1993, in which lead measurement increased 88.9 percent. The peaks were related to a source--specific problem that has since been corrected. Since 1995, lead measurements have remained almost non-existent. The quarterly average means ranged from .003 ug/m3 in the third quarter of 2003 to .025 ug/m3 in the second quarter of 1995. South Carolina is well within the limits of the national standard for lead.









6 SULFUR DIOXIDE (SO_2)

Nature and Sources of the Pollutant

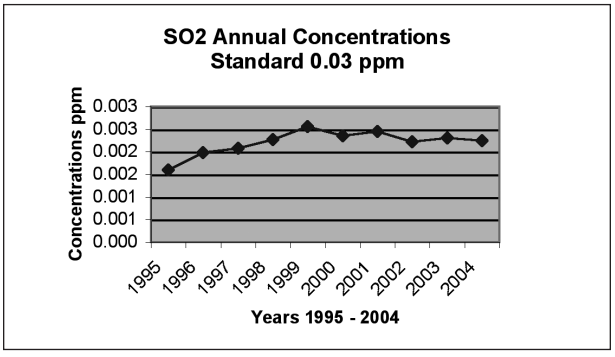
Sulfur dioxide (SO_2) is a gas formed from the burning of coal and oil. It is part of smog and acid rain. Many monitoring stations are located in urban areas where the highest concentrations of SO_2 are recorded. This is due to the location of large industrial facilities. Fuel combustion, largely from coal-fired power plants, accounts for most of the total SO_2 emissions.

Health and Environmental Effects

For asthmatic individuals, short-term exposure to SO_2 levels may result in breathing difficulties and may be accompanied by wheezing, chest tightness or shortness of breath. High concentrations of SO_2 can result in temporary breathing difficulties for asthmatic children and adults who are active outdoors. Other effects related to longer-term exposure to high levels of SO_2 combined with high levels of particulate matter include respiratory illness, alterations in the lungs' defenses and aggravation of existing cardiovascular disease. SO_2 is a major precursor to $PM_{2.5}$, which is a significant health concern, as well as the main pollutant that impairs visibility.

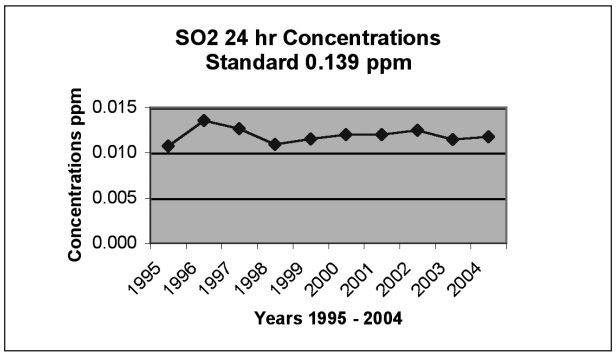
Combined SO_2 and NOx are the components of acid rain that are harmful to both plant and aquatic life. They also accelerate corrosion of buildings, statues and monuments.

Trends in Sulfur Dioxide Levels

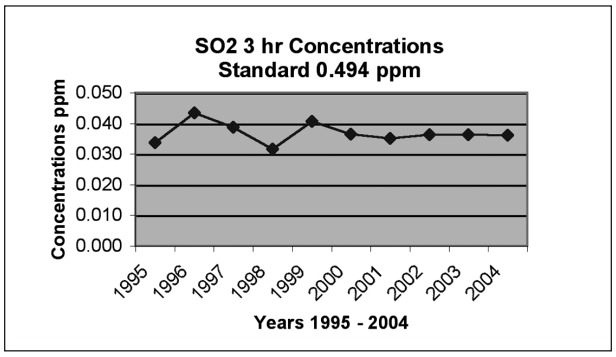


The statewide annual arithmetic mean concentration of SO_2 remained at .002 over the last 10 years with the exception of 1999, when it was .003 ppm. During the same 10 year period, the maximum for the 24-hour standard ranged from a low of 0.011ppm to a high of 0.014 ppm.

There are two primary national standards for SO_2 and one secondary national standard. The primary standards are an Annual Arithmetic Mean (AAM) of 0.03ppm and a 24-hour average of 0.14ppm. The Annual Arithmetic Mean is used to look at long-term concentrations of SO_2 in the ambient air, while the 24-hour standard is set to measure short-term concentration levels. Any short-term spikes in ambient concentrations are usually attributable to a specific event and thus are immediately corrected.



The secondary SO_2 National Ambient Air Quality Standards is a 3-hour average concentration of 0.50ppm (1,300 μ/m3), not to be exceeded more than once a year.



The 3-hr block average maximum ranged from .032 in 1998 to .043ppm in 1996. South Carolina remains well below all national standards for SO_2.

REGIONAL HAZE: VISTAS

Visibility impairment continues to be one of the most obvious effects of air pollution. It occurs at many of our most treasured natural areas, often referred to as Class I parks and wilderness areas (e.g., the Smoky Mountains). There are 18 such areas within the southeastern United States. The Visibility Improvement-State and Tribal Association of the Southeast (VISTAS) was formed to address regional haze and visibility problems in this area of the country. DHEC's Bureau of Air Quality is an active member of this non-profit organization.

Visibility impairment is also an issue in urban areas and is the result of the scattering and absorption of light by air pollution, including particles and gases. Primary particles, such as dust from roads or soot from wood combustion, are emitted directly into the air. Secondary particles are formed in the air from primary gaseous emissions. Humidity also plays a significant role in increasing the effect of pollution on visibility.

Because this visibility impairment or haze is occurring regionally, the cooperation among the many agencies responsible for developing and implementing air quality plans is key to effectively addressing this problem. The Southeastern States Air Resource Managers (SESARM) is the responsible fiscal organization for the VISTAS project.

During FY 2001 and FY 2002, SESARM submitted to the United States Environmental Protection Agency (EPA) a multi-year work plan for regional haze activities to account for its federal funding. VISTAS functions through a three-level organization, the first of which is the governing body called the State and Tribal Air Directors (STAD). It is responsible for obligating funds towards priority expenditures and handling policy issues. A Coordinating Committee of program chiefs from the member agencies handles routine decision-making. Workgroups, consisting of agency technical and managerial staff as well as stakeholders, oversee the performance of technical work designed to address federal regional haze mandates.

Three workgroups have been formed: 1) Data, 2) Planning, and 3) Technical Analysis. The Data workgroup compiles the air quality and meteorological monitoring data to conduct analyses and modeling needed for VISTAS states to comply with federal haze regulations. The Planning workgroup develops the overall plan for VISTAS activities, coordination and strategies. The Technical Analysis workgroup oversees the regional haze and fine particulate modeling that is required for State Implementation Plans (SIP).

VISTAS has begun to work toward its goals and a summary of the status of its work plan is available at http://www.vistas-sesarm.org/index.asp. The overall deadline for submitting a regional haze SIP to EPA is by December 31, 2007. This timeline is based on the regulatory development needs of the VISTAS' member states, tribes and local agencies.

EDUCATION AND OUTREACH

The Education and Outreach Section offers environmental education services on air quality issues to a wide variety of community organizations such as civic groups, teachers, students and the general population. Staff provide resource materials and presentations at no charge. Staff have partnered with the media to provide the ground-level ozone forecast and improve public knowledge of the health effects of exposure to ground-level ozone. Partnerships with various civic organizations and participation in public events that can raise awareness about air quality issues are given high priority. The title "Spare the Air" is utilized by this section as an umbrella under which its collective projects, programs and activities fit. The goal for this section is to encourage individuals to voluntarily reduce air pollution. To improve air quality and lead by example, BAQ staff in 2002 designed an alternative commute program entitled

"Take a Break From the Exhaust". This program tracks staff activities during ozone season. Staff enter their voluntary actions into a computer-generated program which awards points for each action taken; e.g., carpool, walk, bicycle to work, stay indoors for lunch, telecommute. This program won the 2003 Governor's Pollution Prevention Award for state government agencies. Subsequently, other areas of EQC and other agencies and organizations began utilizing this program. Other projects developed have included gas can exchange events, programs for school aged youth, including an anti-idling project, and the development of a *GreenScapes* pilot project.

INDOOR AIR QUALITY

BAQ does not receive funding for an indoor air program. However, in recognition of the importance of indoor air quality and public health, the bureau does offer certain referral services and resources. BAQ receives many telephone calls regarding problems or concerns with indoor air quality in the workplace, schools and private residences.

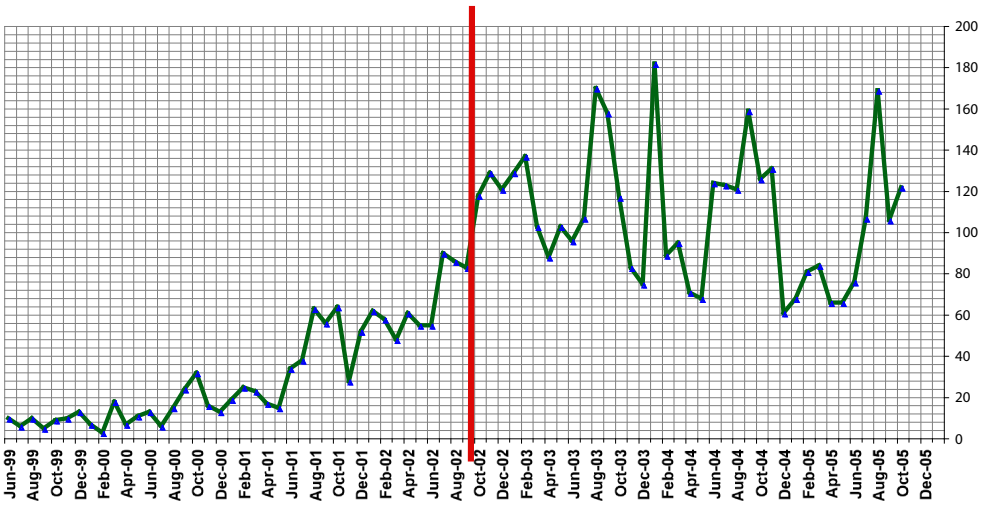
In 1999, the bureau received 58 calls; in 2004, the number increased to 1,405. As the public becomes more aware of problems related to poor air indoor air quality, we expect to continue seeing an increase in the number of calls received. Bureau staff actively participate in groups such as the S.C. Asthma Alliance, which works to improve health management/quality of life for children and adults with asthma.

Asthma Facts

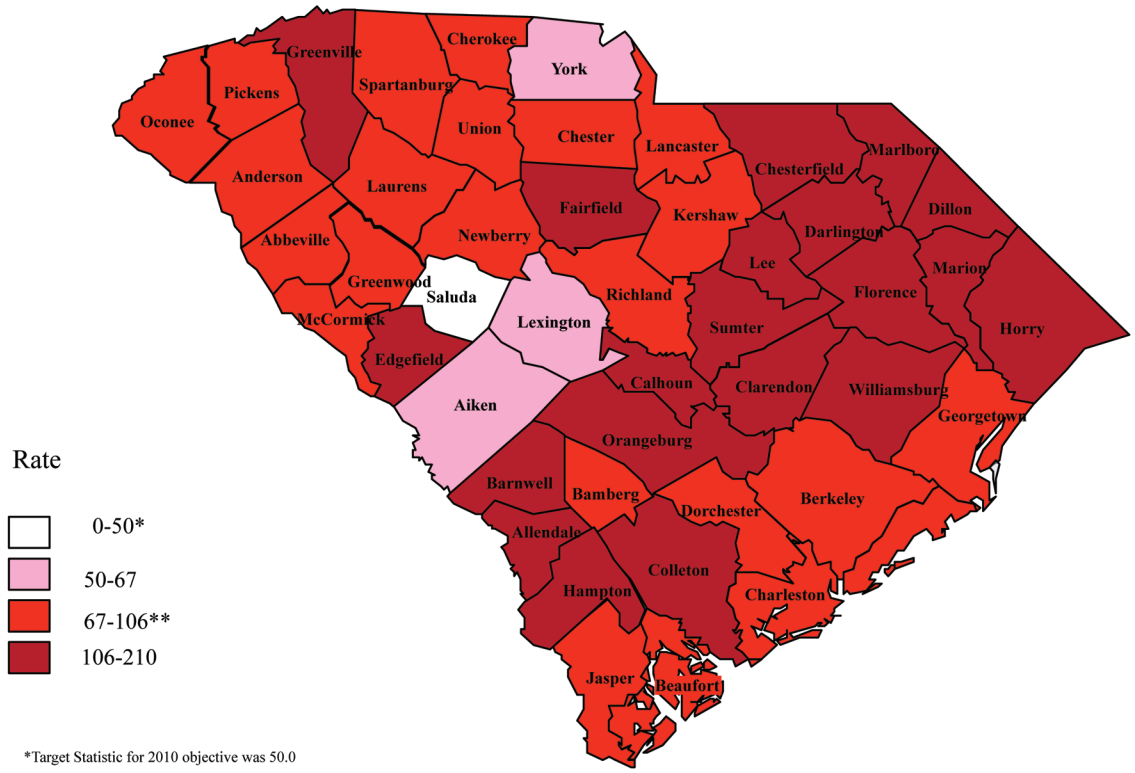
- The asthma prevalence rate is highest among those under 18 years old.
- In 2003, asthma and related conditions were the leading causes of hospitalizations in South Carolina for children ages 18 years and younger.
- In 2003, there were 5,843 hospitalizations of children due to asthma.
- Asthma is the leading cause of disability among children.

BAQ's Web site provides information on mold and other indoor air concerns (http://www.scdhec.gov/baq); click on "Indoor Air".

SCDHEC, BAQ
Indoor Air Quality
Telephone Calls and E-mails
(June 1999- October 2005)



Rate of ER Visits Due to Primary Diagnosis of Asthma among younger than 18 people in 2003 (per 10,000)

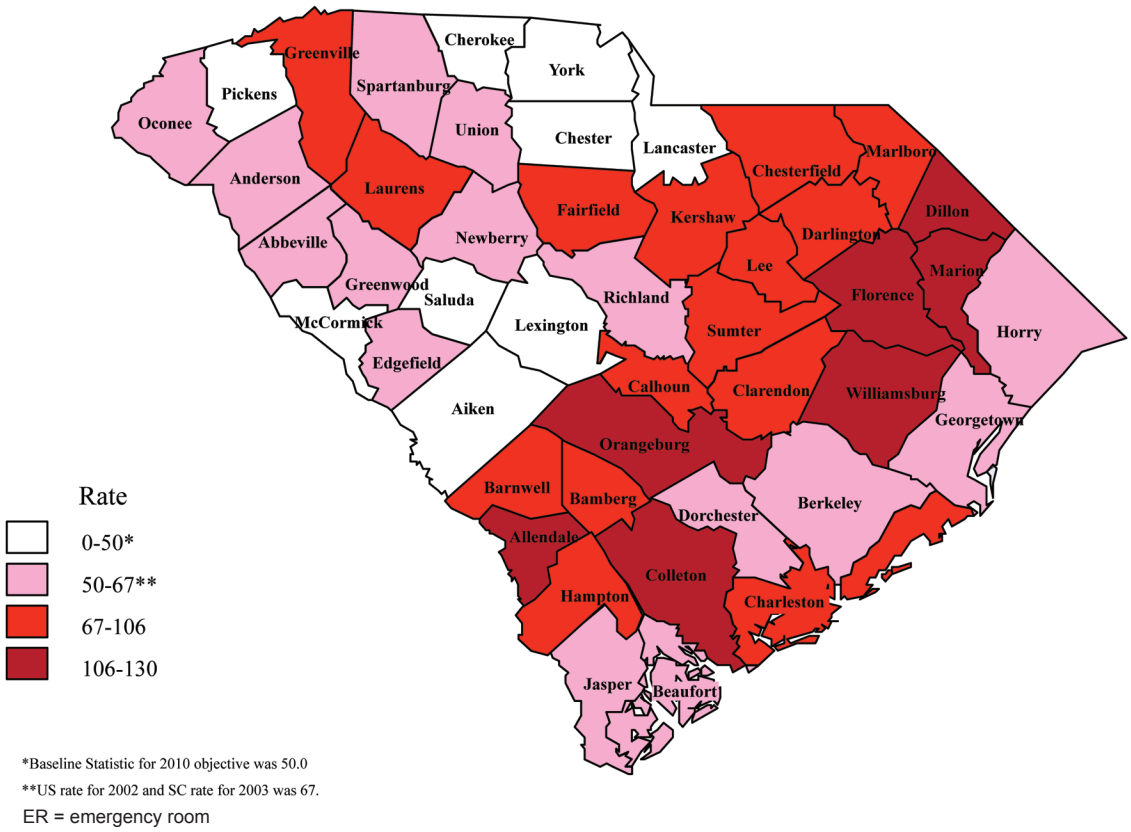


*Target Statistic for 2010 objective was 50.0

**US rate for 2002 was 100 and SC rate for 2003 was 106

ER = emergency room

Rate of ER Visits Due to Primary Diagnosis of Asthma in South Carolina, 2003 (per 10,000)



*Baseline Statistic for 2010 objective was 50.0

**US rate for 2002 and SC rate for 2003 was 67.

ER = emergency room

METEOROLOGY AND MODELING

Meteorologists in the BAQ have issued ground-level ozone advisories for the Greater Midlands (Columbia) and the Upstate (Greenville-Spartanburg, and Anderson) areas each day of ozone season (May 1st – Sept. 30th) since 1998. Eventually expanded into two additional areas, the Pee Dee (Florence-Darlington), and Central Savannah River (Aiken-Augusta), these daily forecasts, based on actual meteorological and monitoring data, deliver an important health message in an easy-to-read color-coded format. In addition to the health-based message, additional information is included in these releases providing tips to the public on what they can do to help reduce overall concentrations of ozone in the ambient air.

Meteorology has proven to play the dominant role in the degree of ozone formation in most locations across the globe for any given period of time. In the same vein, much has been learned about the formation and behavior of ozone in South Carolina's air shed since BAQ meteorologists first began their forecasting efforts. Observations have shown that elevated concentrations of ground-level ozone rarely occur on cool, cloudy days, even when ample levels of the precursor chemicals that contribute to its formation are present. Conversely, when conditions are hot, sunny, and dry, ozone concentrations may rise to historic proportions, even when levels of component precursors are relatively low. Based on this generalization, meteorologists have determined that the position of the main large-scale climatological pattern during ozone season, the Bermuda High, plays a crucial role in determining the severity and duration of high ozone events.

Global pattern shifts, such as La Niña and El Niño, may also play an important role in the severity of an ozone season by virtue of their ability to alter the mean position of the Bermuda High on a grand scale. The winter of 1997-1998, for example, was considered one of the strongest El Niño periods since the anomaly was first identified. As this pattern waned into the spring of 1998, it caused a significant westward shift in the overall Bermuda High position, one that lasted all summer. The result was an abnormally hot and dry ozone season all across the Southeastern United States. The lack of moisture from the Gulf of Mexico, combined with a diminished wind flow pattern, caused periods of stagnation over South Carolina, often lasting for weeks at a time. As a result, the state experienced one of its most severe ozone seasons on record.

Bureau meteorologists have found that not all shifts in the global pattern by these anomalies affect South Carolina in the same way each time they occur. Sometimes, the duration and strength of their occurrence can actually assist in keeping ozone seasons mild. The winter of 2002-2003, for example, was considered a weak El Niño period. As opposed to 1998, however, the relaxation of this most current anomaly did not occur until much deeper into the ozone season. This disrupted weather patterns all over the Northern Hemisphere throughout the summer months. It helped spare the Southeastern United States from ozone problems due to the extremely slow build in the strength of the Bermuda High. Additionally, its position, as in the mild ozone seasons of 2000 and 2001, was situated hundreds of kilometers further east than normal. Moisture from both the Gulf of Mexico, as well as the Atlantic Ocean, was able to overspread the Southeast nearly unabated all summer long. The resulting cooler, cloudier, and windier conditions provided an ozone season marked by a lack of periods of significant stagnation in an atmosphere that was most often non-conducive to ozone formation.

The 2004 season marked a return to a more neutral overall pattern, without the severe droughts of 1998 and 1999, or the markedly cool summers of 2001 and 2003. Overall air quality stayed surprisingly clean, with only a few sporadic violations over the course of the season; usually at only one or two monitors on a single afternoon. Periods where ozone levels remained high were, almost nonexistent, mirroring a subtropical pattern that stayed in motion pretty much the whole summer. In addition, with all the severe tropical activity occurring around the Gulf Coast and South Atlantic states, South Carolina was quite fortunate to not receive a "glancing blow" from any of these storms,

since the storms sometime send ozone levels around their periphery above the standard. As the summer waned into fall, another shift in sea surface temperatures off the South American coast spelled out a return to El Niño at least two years earlier than would otherwise be expected. As the season came to a close, even abnormally warm and dry conditions marking the impending El Niño came too late to cause air quality problems for the the Palmetto State. All in all, the 2004 ozone season turned out much better than BAQ meteorologists expected by earlier climatological indications.

Overall, the quality of South Carolina's air is excellent, with ozone levels remaining well below the previous 1-hour EPA standard. In 2004, however, the federal government designated non-attainment areas under the newer, more stringent 8-hour standard. A few counties in the larger inland urban areas of the state have been designated as being out of attainment with this standard by the U.S. EPA. These areas of concern include counties in two areas currently receiving the daily ozone forecast release, the Greater Midlands and the Upstate (the Columbia Metro Area and the I-85 Corridor to be more precise).

In recognition of this potentially significant setback to its goal of keeping the entire state of South Carolina in attainment with all federal air quality standards, the BAQ continues a proactive process aimed at identifying strategies to bring all of South Carolina back into attainment over the next few years. Two key components in this process involve using sophisticated computer models designed to predict changes and help generate solutions to air quality problems over South Carolina and its surrounding region. The first project, completed by bureau staff in 2004, successfully provided concrete strategies aimed at bringing the Greenville and Columbia areas back into attainment at an earlier date than has been set by the EPA. The second, ongoing project involves the Bureau's participation in a cooperative effort between South Carolina and neighboring Southeastern states. The project is designed to provide region-wide strategies for meeting ozone standards, as well as all other applicable EPA standards for particle pollution and visibility.

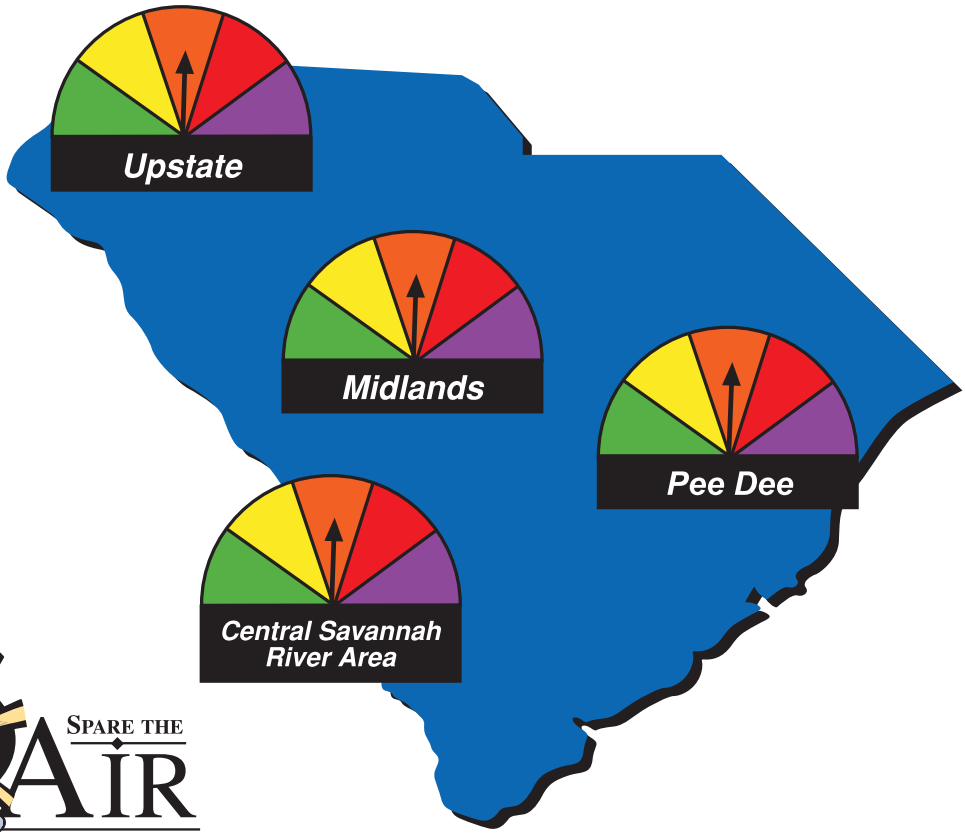
In addition to these modeling efforts, the BAQ continues to work in partnership with North Carolina to produce effective strategies for bringing the Metrolina Area (Charlotte-Gastonia-Rock Hill) back into attainment prior to its date for final non-attainment designation in 2010. This project, quite similar to that undertaken by South Carolina under its own Early Action Compact initiatives, will help ensure that the designated area of York County will continue to meet all applicable EPA air quality standards while the rest of the Metrolina area is brought back into attainment.

Using the latest forecasting tools, high ozone days can often be predicted. On days forecasted to have high concentrations, you can help reduce the formation of ground-level ozone by:

- Driving less – automobiles are a significant source of NO_x and VOCs
- Carpooling – it is especially important to reduce the morning commute
- Shopping by phone, mail or the Internet, or telecommuting if you can
- Riding public transit where available
- Combining your errands into one trip – plan ahead and save time and money
- Fueling up in the afternoon and avoid adding more VOCs to the morning mix
- Walking or riding a bicycle to work or lunch

Remember, in South Carolina a majority of air pollution comes from cars and trucks. Even though cars and trucks run 90 percent cleaner today than they did in 1970, we are driving more miles than ever before, and this offsets the advantages gained from "cleaner" technology.

GROUND-LEVEL OZONE FORECASTING



SPARE THE AIR

AIR QUALITY INDEX		
Index Values	**Descriptors**	**Cautionary Statements for Ozone**
0 to 50	Good	None.
51 to 100	Moderate	Unusually sensitive people should consider limiting prolonged outdoor exertion.
101 to 150	Unhealthy for Sensitive Groups	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
151 to 200	Unhealthy	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
201 to 300	Very Unhealthy	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.

SOURCE EVALUATION

Permits typically require facilities to test their emissions sources periodically. The Source Evaluation Section observes selected source tests and reviews the final reports submitted for all tests. Observation ensures that source test data are collected using the proper and approved EPA methodologies. Both observation and review ensure quality emissions and process data. Information generated from these reports is used to determine compliance status, emissions rates, and permit conditions. Emissions data are also used as the basis for assessment of annual fees.

The Section targets high priority tests for observation. A high priority test is defined as any test whose results could have a significant impact on the compliance status of the facility. The facility's compliance and enforcement history, the complexity of the test, and the frequency of source testing are also factors in determining priority.

2001 Source Evaluation Data

351 Total Tests
263 High Priority Tests
49 percent of High Priority Tests Observed

2002 Source Evaluation Data

463 Total Tests
348 High Priority Tests
53 percent of High Priority Tests Observed

2003 Source Evaluation Data

363 Total Tests
248 High Priority Tests
52 percent of High Priority Tests Observed

2004 Source Evaluation Data

404 Total Tests
274 High Priority Tests
45 percent of High Priority Tests Observed

ENFORCEMENT

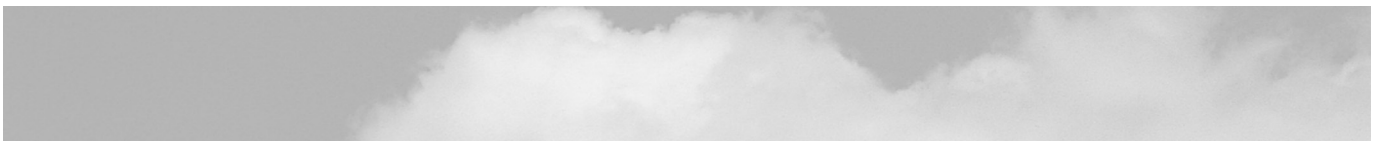
The main objective of the Enforcement Section is to ensure that any company or individual found to be in violation returns to and maintains compliance. The Section accomplishes this goal using of compliance assistance tools and through the administrative enforcement process. The latter includes issuance of Notices of Violation, conducting enforcement conferences, issuance of Consent and Administrative Orders, and assessment of civil penalties when appropriate. Compliance assistance may be offered if the violation has not exceeded emissions limits or standards.

2001 Enforcement Data

333 Notices of Violation Issued
- 268 for Stationary Sources
- 35 for Asbestos
- 30 for Open Burning

105 Orders Issued
- 88 for Stationary Sources
- 3 for Asbestos
- 14 for Open Burning

Total Penalties Assessed: $684,550



2002 Enforcement Data

343 Notices of Violation Issued
- 280 for Stationary Sources
- 35 for Asbestos
- 28 for Open Burning

109 Orders Issued
- 86 for Stationary Sources
- 7 for Asbestos
- 16 for Open Burning

Total Penalties Assessed: $986,200

2003 Enforcement Data

431 Notices of Violation Issued
- 340 for Stationary Sources
- 54 for Asbestos
- 37 for Open Burning

103 Orders Issued
- 81 for Stationary Sources
- 3 for Asbestos
- 19 for Open Burning

Total Penalties Assessed: $899,025

2004 Enforcement Data

363 Notices of Violation Issued
- 227 for Stationary Sources
- 116 for Asbestos
- 20 for Open Burning

96 Orders Issued
- 73 for Stationary Sources
- 18 for Asbestos
- 5 for Open Burning

Total Penalties Assessed: $578,400

AIR TOXICS

Naturally Occurring and Man-Made Sources

Air toxics, otherwise known as hazardous air pollutants, are air pollutants that are known to or are suspected of causing serious health effects. Air toxics can exist in the form of particulate matter or as gases. Some examples are arsenic, asbestos, benzene, vinyl chloride, mercury, chromium, toluene and beryllium. Most air toxics originate from man-made sources, including mobile sources (cars, trucks, construction equipment), stationary sources (factories, refineries, power plants), as well as indoor sources (some building materials, pesticides and cleaning solvents). Some air toxics are released from natural sources such as volcanoes and forest fires.

Health and Environmental Effects

Exposure to air toxics in sufficient concentrations and for sufficient durations may increase the risk of getting cancer or experiencing other serious health effects. Depending upon which air toxics a person is exposed to, these health effects can include damage to the immune system as well as neurological, reproductive (reduced fertility), developmental, and respiratory problems.

Toxic air pollutants deposited on soils or surface waters have an environmental impact. Numerous studies conclude that deposited air toxics contribute to birth defects, reproductive failure, and disease in animals. A build-up of large amounts can be harmful to plants and animals or to a person consuming these plants and animals; a good example is mercury in fish.

2004

202 Risk Management Plans (RPMs) reviewed

43 On-site Risk Management Program facility inspections

MACT Reports Reviewed
2001 - 120
2002 - 224
2003 - 338

MACT Inspections Conducted*
2001 - 39
2002 - 39
2003 - 82

*These MACT inspections were actually conducted by the regional offices with some assistance from the Central Office Air Toxics Section.

TOXIC RELEASE INVENTORY (TRI)

Since 1998, industries that use listed toxic chemicals under Section 313 of Emergency Planning Community Right-to-Know in South Carolina have reported gradually decreasing emissions.

The Toxics Release Inventory (TRI) came into effect in 1987, but 1998 is used as the baseline year for monitoring trends due to that year's expansion to the full compliment of industry sectors currently reporting. The most recent year of finalized TRI industry submissions is 2003.

Facilities that use threshold amounts of listed chemicals and maintain at least 10 full time employees must account for all quantities of the chemical that are not incorporated in a manufactured product. Production-related waste encompasses a hierarchy of possible waste streams that a facility must specify in their annual TRI report as required by the 1990 Pollution Prevention Act. Releases to air, land and water comprise a small fraction of overall waste amounts (Figure 1) and are ranked as the least desirable. However, all releases are assumed to be in compliance with a facility's permit conditions.

Four industry sectors have contributed more than 80 percent of the emission volume released statewide from 1998 through 2003 (Figure 2).

Of the four, only "Electric, Gas, & Sanitary Services" reported an increase in emissions. All other industry sectors combined for a 10 million pound decrease thereby offsetting the electrical generating facilities' increase of 3.3 million pounds.

During this same trend period, 88 percent of emission volume was composed of chemicals listed under South Carolina Air Pollution Regulation 62.5, Standard No. 8, *Toxic Air Pollutants*. Because air toxics are released from TRI facilities that qualify as small stationary sources as well as large stationary sources, it is not possible at this point to determine that portion of TRI facilities subject to Regulation 62.5. However, the sum total of Standard 8 chemicals and compounds reported by TRI facilities can be compared with "non-Standard 8" TRI chemicals (Figure 3).

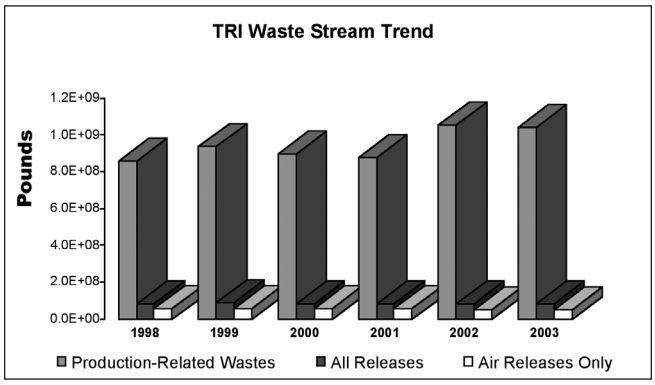


Figure 1

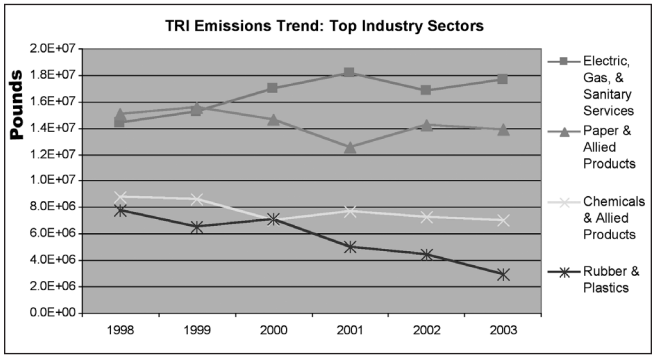


Figure 2

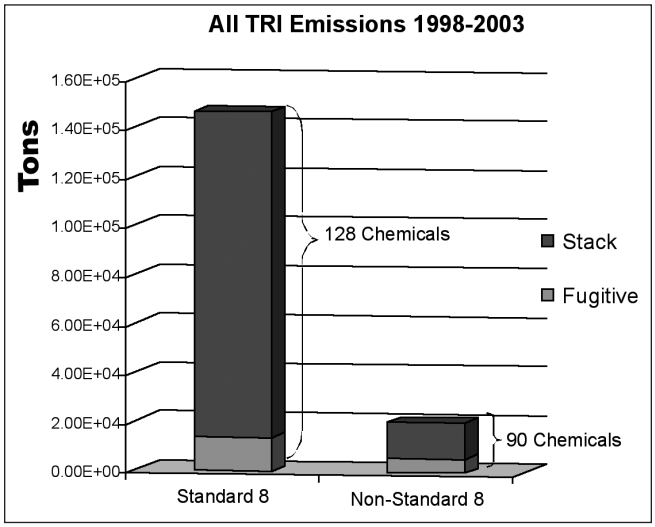


Figure 3

EMISSIONS INVENTORY

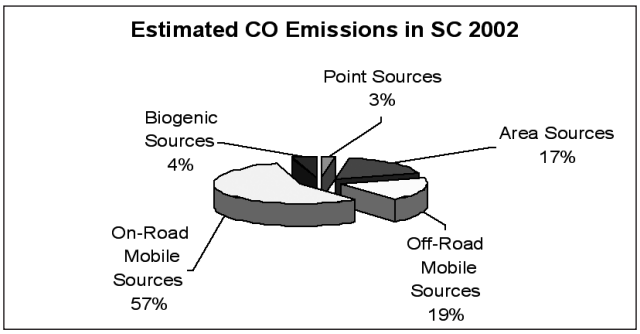
Emissions inventory is a way of identifying and estimating air emissions in our state. A standard process is used to account for emissions from a wide variety of sources. Data is quality-assured to achieve accuracy and completeness. This information is important for use in policy and other decision-making processes, and collection of the data is required by the EPA. Much of the data collected in the emission inventory process is later used in air quality models and as a basis for fees imposed on those emission sources.

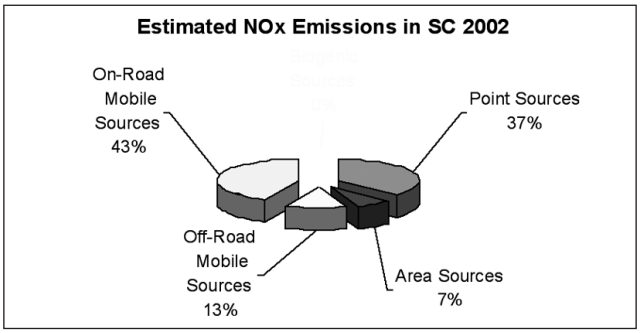
The sources for which an emission inventory is completed include point sources, area sources, biogenic sources, and mobile sources. Point sources are stationary sources such as electric utilities, asphalt plants, steel mills, and most large industrial sources. Area sources individually do not make a large contribution to air pollution levels, but when added together, they may have a large impact. Examples of area sources include gas-powered lawn equipment, everyday materials such as paint and lighter fluid, house painting, gas stations, and dry cleaners. Biogenic emissions are not man-made. For example, forest fires, trees and other vegetation are natural sources of air pollution. Examples of mobile sources are passenger cars, motorcycles, buses, trucks, trains, airplanes, and construction equipment.

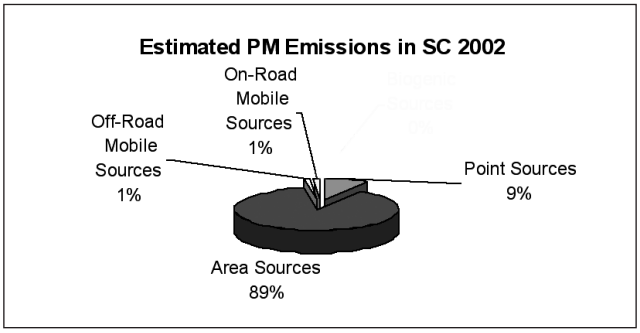
Pollutant	Point Sources	Area Sources	Off-Road Mobile Sources	On-Road Mobile Sources	Biogenic Sources
CO	55,078	333,798	363,923	1,089,053	83,742
NO2	126,603	24,327	42,633	145,913	0*
PT	27,337	283,601	3,833	3,908	0*
SO2	257,133	31,125	3,929	5,103	0*
VOC	37,962	187,158	40,505	82,010	901,639

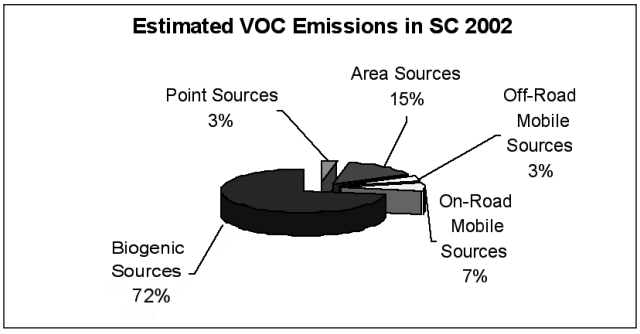
Data represents emissions for year 2002. PT estimates represent PM_{10} emissions across all sectors. The NEI only generates complete emissions inventories every 3 years.

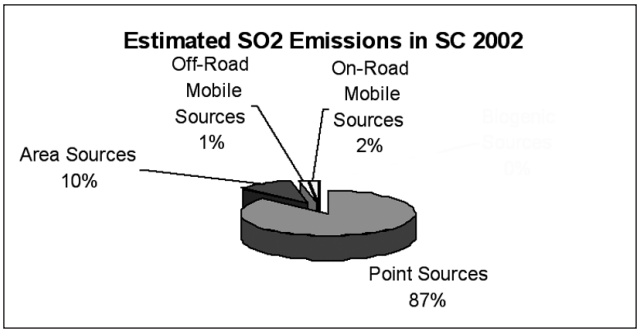
**model does not generate numbers for these pollutants from biogenic sources.*











ASBESTOS

Asbestos is a name given to a group of minerals that break apart into very fine and strong fibers. It is found worldwide in certain types of rocks. The EPA listed asbestos as an unsafe pollutant or hazardous air pollutant in the early 1970s. Asbestos has been used frequently in the past because it is strong and flexible and will not burn. It has been used to make many household products, building materials for factories, schools and public buildings, and paper products. People are exposed to asbestos by breathing in asbestos fibers released into the air when materials containing asbestos are damaged. Health problems linked to asbestos can take many years to appear. Exposure to asbestos can cause asbestosis, which is scarring and inflammation of the lungs, and cancers of the lungs, esophagus, colon, pancreas and stomach.

In 1986, DHEC promulgated regulations governing the performance of asbestos abatement projects. The BAQ is responsible for overseeing renovations and demolition of regulated facilities that are determined to contain asbestos. This oversight includes the following activities:

- licensing renovation and demolition projects;
- licensing personnel who work to remove asbestos;
- auditing asbestos training courses to ensure workers receive effective training;
- ensuring proper asbestos disposal; and
- inspecting asbestos sources to ensure removal is done correctly.

Carrying out these functions ensures that asbestos is removed according to regulation and in a manner protective of the public's health. Demolitions are regulated by DHEC and the EPA. DHEC must be notified at least 10 working days before demolition is started, and an inspection for asbestos is required.

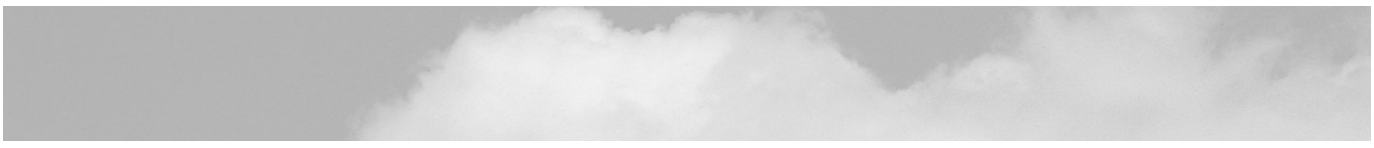
To enhance DHEC's ability to regulate asbestos abatement activities adequately, the General Assembly in 1988 established fees for asbestos projects and for asbestos personnel licenses. Asbestos removal peaked during the 1990s and has declined slowly since that time. The decline in removal is due in part to better public understanding of the risks and to the greater acceptance of managing undamaged asbestos in place. Although use of asbestos in many products is now prohibited, asbestos--containing products may still be imported and used in various applications.

PERMITTING

To maintain air pollution laws and regulations, the BAQ has a permitting system for industrial and commercial facilities that emit pollutants into the ambient air. A permit is a legal document that limits the amount of regulated pollutants that may be released by the permitted source. Before construction of a new facility begins, or before changes or additions are made to existing sources of air pollution, permission must be obtained from the Bureau.

State regulations (R.61-62) provide the basis for the BAQ permitting system. These regulations allow for the issuance of all types of air permits that set limits on emissions. In South Carolina, state regulations may be more stringent than those set at the federal level.

South Carolina also has two New Source Review programs for major sources of air pollution. The Prevention of Significant Deterioration (PSD) regulation is based on the federal Prevention of Significant Deterioration program. This regulation allows only minimal emission impact on soils, vegetation, and visibility (in Class I areas) by new sources. Class I areas are parks and wilderness areas designed by Congress to be preserved in relatively pristine condition. South Carolina has a single Class I area—Cape Romain National Refuge—located near



Charleston. Air emissions from South Carolina facilities have the potential to impact Class I areas in other states as well. The Non Attainment New Source Review (NA NSR) regulation addresses major facility construction and modifications in areas not meeting ambient air quality standards

Additionally, the BAQ was delegated authority from the EPA to implement most New Source Performance Standards (NSPS) and certain National Emission Standards for Hazardous Air Pollutants (NESHAP). New Source Performance Standards regulate criteria, and National Emissions Standards for Hazardous Air Pollutants are federally mandated regulations developed on an industry or process-specific basis.

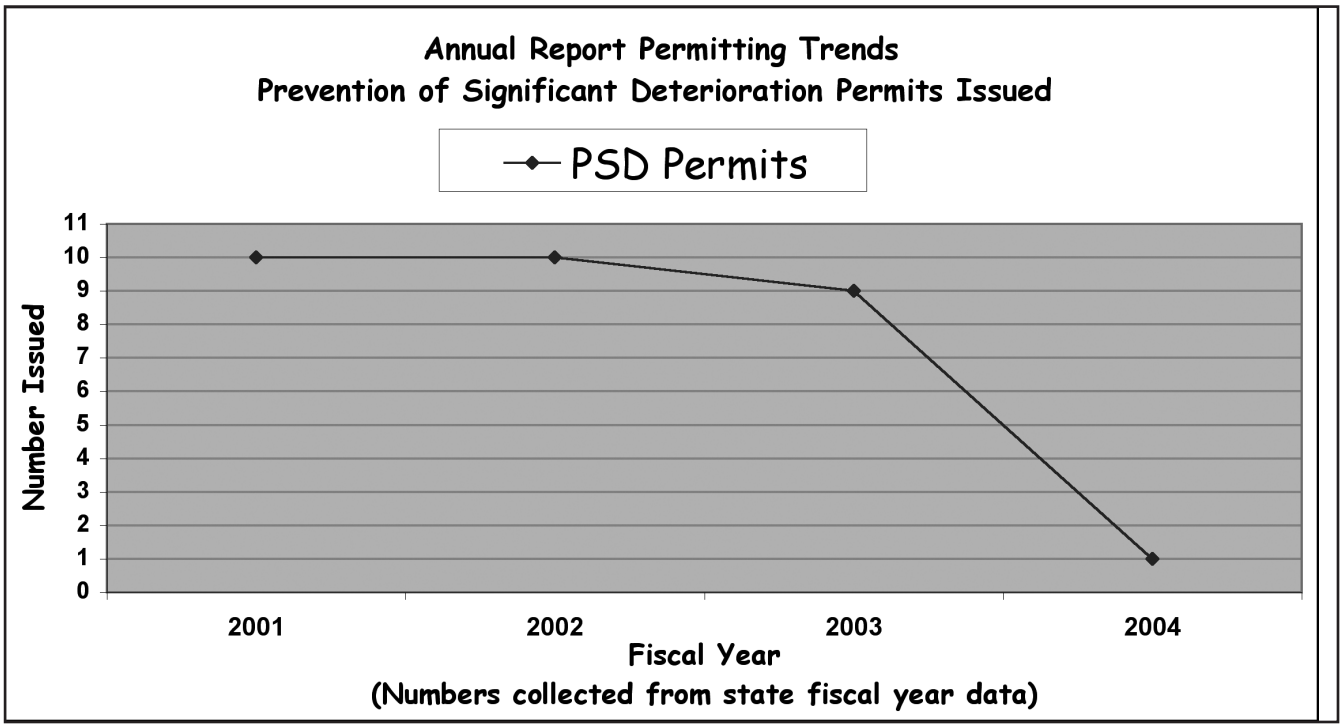
In addition to construction permits, the BAQ has authority to issue the following types of permits:

- **Title V Operating Permit:** The purpose of the Title V Operating Permit Program is to provide a comprehensive air quality operating permit for all major sources of air contaminants. The Title V Operating Permit Program applies to any major facility defined as having the potential for uncontrolled emissions of 100 tons per year or more, or which has the potential for uncontrolled emissions of any one hazardous air pollutant of 10 tons per year or more, or any combination of hazardous air pollutants totaling 25 tons per year or more.
- **Conditional Major Operating Permit:** An operating permit that limits the facility's potential to emit below Title V Major source status as defined in DHEC's Regulation 61-62.70, *"Title V Operating Permit Program."*
- **Minor Source Operating Permit:** An operating permit for facilities that have the potential to emit less than 100 tons per year of any criteria pollutant, less than 10 tons per year of any single hazardous air pollutant, or less than 25 tons per year of more than one hazardous air pollutant.

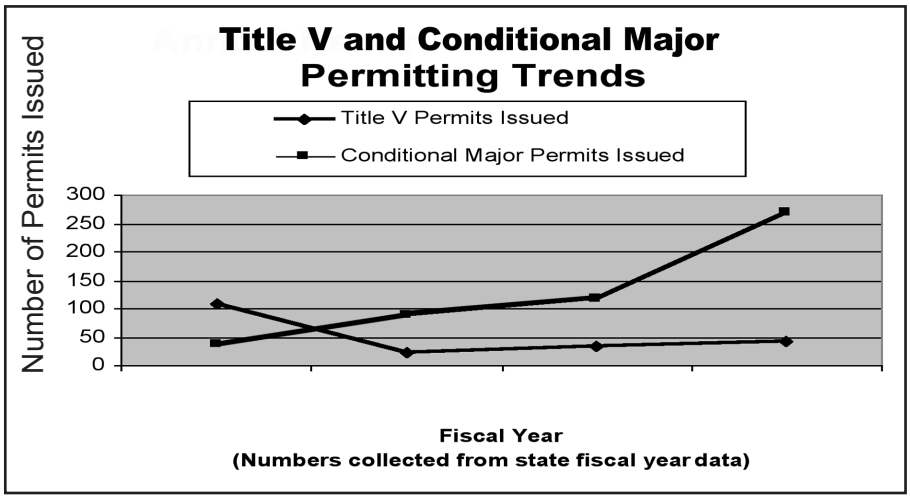
TECHNICAL MANAGEMENT

The Technical Management Section of the BAQ reviews facility compliance monitoring reports, Title V annual compliance certifications, and internal and district inspection/investigation reports. Compliance monitoring reports are reviewed for accuracy, completeness, timeliness, and conformance with state and federal regulations and permit requirements. Title V annual compliance certifications are thoroughly reviewed to ensure that facilities certify the compliance status of each term and condition in Title V permits. The section is responsible for tracking compliance monitoring, inspection, and source test data to ensure conformance with EPA's compliance monitoring strategy. The section validates compliance and enforcement data before uploading to EPA's AIRS and ECHO databases. To ensure consistency and accuracy, the section reviews all inspection/investigation reports and referrals generated by BAQ staff. The section also carries out district liaison activities, prepares and distributes district activity and inspection reports, performs quality assurance assessment of source inspectors, and provides training for district personnel.

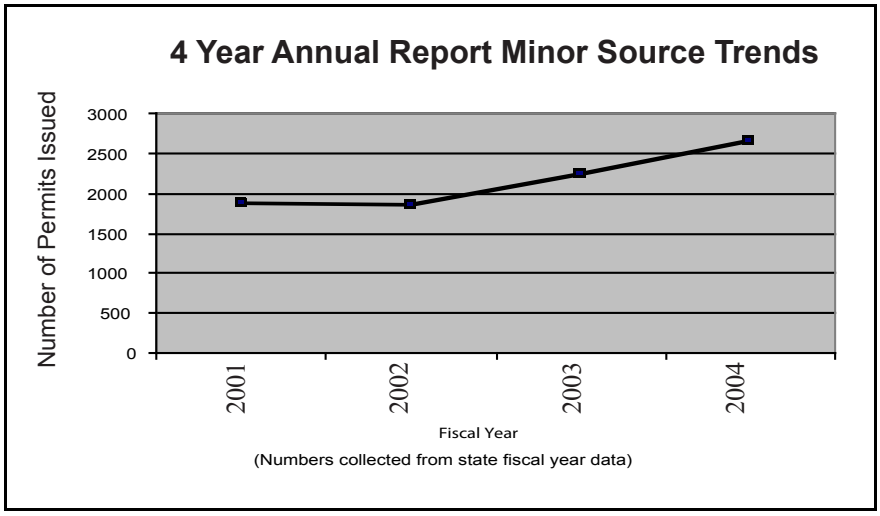
	2001	2002	2003	2004
Periodic Monitoring Reports Reviewed	8500	9458	8514	8419
	2525	2636	2468	2608
Continuous Emission Monitoring Reports Reviewed	800	850	850	850
Control Device Monitoring Plans Reviewed	25	4	2	0
Annual Compliance Certifications Reviewed	162	266	335	329
District Inspector QA Evaluations Conducted	7	14	4	7



Fiscal Year	PSD Permits Issued
2001	10
2002	10
2003	9
2004	1



Fiscal Year	Title V Permits Issued	Conditional Major Permits Issued
2001	109	37
2002	24	90
2003	34	118
2004	42	269



Fiscal Year	Permits Issued
2001	1877
2002	1856
2003	2251
2004	2662

ENVIRONMENTAL SERVICES
Reigional Air Services

To streamline administration and increase efficiencies, DHEC has consolidated its 12 district offices into eight regions effective July 1, 2005. The move is intended to generate a cost savings for the agency and the state, while revewing the agency's focus on customer service.

There are 12 Environmental Quality Control (EQC) offices located in eight regions around the state. In general, region staff are involved in most EQC programs including water and wastewater quality, air quality, solid and hazardous waste, recreational waters, radiological health, and on the coast, shellfish sanitation. The number of regional air quality staff in each EQC office ranges from two to four inspectors. Region air quality staff provide a number of services designed to protect air quality. Their primary responsibilities include inspection of sources of air pollution at facilities, responding to citizen concerns regarding air quality, and performing air sampling and monitoring activities. Additionally, they provide technical assistance to regulated facilities and participate in education and outreach activities for the general public.

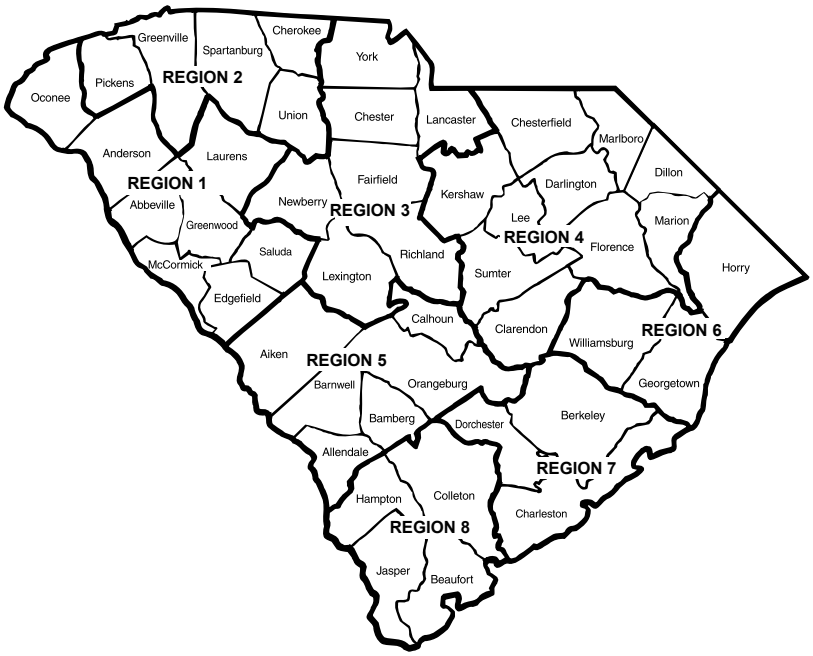
EQC AIR LABORATORY

Air Laboratory staff provide monitoring and laboratory services to various programs within the Air Program. Basic services include environmental monitoring, sample analyses and management.

Regional Air Services Activities for 2001-2004

Total Inspections/Investigations conducted	7,245
Complaint Investigations	5,690
Investigations related to Open Burning	1,280
Notices of Violation Issued for Open Burning (from Central and Regional Offices)	973

DHEC REGIONS



NUMBER ORDER BY REGIONS

Districts (until July 1, 2005)	Regions (effictive July 1, 2005)	Counties (effective July1, 2005)
Appalachia I & Upper Savannah	Region 1	Abbeville Anderson Edgefield Greenwood Laurens McCormick Oconee Saluda
Appalachia II & Appalachia III	Region 2	Cherokee Greenville Pickens Spartanburg Union
Catawba & Palmetto	Region 3	Chester Fairfield Lancaster Lexington Newberry Richland York
Pee Dee & Wateree	Region 4	Chesterfield Clarendon Darlington Dillon Florence Kershaw Lee Marion Marlboro Sumter
Edisto/Savannah	Region 5	Aiken Allendale Bamberg Barnwell Calhoun Orangeburg
Waccamaw	Region 6	Georgetown Horry Williamsburg
Trident	Region 7	Berkeley Charleston Dorchester
Low Country	Region 8	Beaufort Colleton Hampton Jasper

See Appendix D for listing of EQC Environmental Office Contact Information

SUMMARY

Protecting and improving air quality is essential to safeguarding public health and protecting our natural resources. Air quality is a shared resource, and all South Carolinians bear responsibility for improving it. The average adult breathes in about 3,400 gallons of air per day. Even though much of the pollution in our air comes from power plants, industrial sources and mobile sources, individuals can make daily choices to decrease air pollution and protect their health.

With the growing population in South Carolina, vehicle emissions are a major contributor to the production of air pollution. Initiatives within the BAQ are being developed to give employees voluntary options to help reduce air pollution. Programs such as "Take a Break From the Exhaust" encourage employees to modify their personal driving habits by staying in for lunch, carpooling, and adjusting their work schedules.

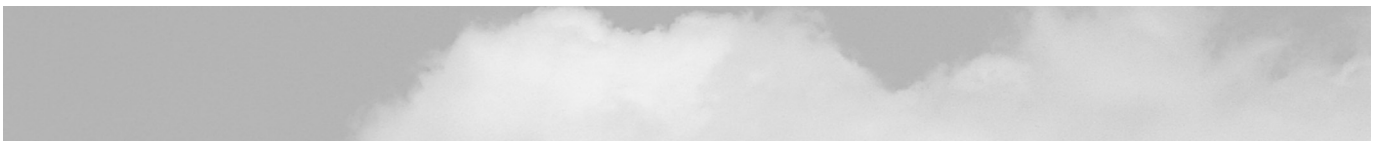
Other programs such as "Ozone Action Class" and "North vs. South" are interactive environmental programs for students and teachers. Both of these Web-based programs focus on ground-level ozone pollution. Both enable teachers and students to have a positive impact in their community.

It is a proven fact that air quality has a direct effect on human health and the environment. During 1990-2004, South Carolina was one of only a small number of states that met most all federal standards for the six criteria pollutants. It is important to note that ambient air in South Carolina has not gotten worse over the past decade, but national air standards for $PM_{2.5}$ and ground-level ozone have become more stringent. In an effort to ensure both clean air and a reliable, affordable energy supply and a growing economy, we must continue to develop new strategies and partners to address issues such as regional haze and pollutants that threaten public health.

Data shown in this report reflect trends towards continuous improvement in South Carolina's air quality. South Carolinians have enjoyed good air quality. With everyone's help and a proactive attitude, we will continue to work together to maintain it and help shape our future.

ACKNOWLEDGMENTS

Bill Galardi, BAQ Assistant Bureau Chief
Michael Monroe, Education and Outreach
Sonya Younger, Education and Outreach
Donna Culbreath, Education and Outreach (retired)
Renee Baecker, BAQ Administration
Tony Lofton, Regulatory Development
Clay Lawson, Air Planning
Rhonda Banks Thompson, Air Toxics
Shera Brigman, Air Permitting
John Glass, Air Modeling
Dick Sharpe, Air Compliance Management
Dianne Minasian, Air Education and Outreach
Henry Phillips, Air Planning
Michael Juras, Air Planning
Melinda Mathias, Air Planning
Leslie Coolidge, Air Planning
Paul Martin, Air Modeling
Scott Reynolds, Air Lab
Scott Dennis, Air Lab
Cristi Horne, Art Department
R. Kris Black, Art Department
Deborah Farr, Art Department
James de Leon, Art Department
Karen Addy, Art Department
Stephanie Mastrobuono, Art Department
A special thanks to everyone who contributed to this publication.



Total Suspended Particulate(TSP) - μ g/m³

[Parameter Code = 11101]

[Air quality standard = 75 μ g/m³ Annual Geom. Mean]

SITE NAME	COUNTY	CITY	GEOM. MEAN.	MAXIMUM 24-HR VALUES 1ST	2ND	3RD	4TH	ANNUAL OBSV	Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
BEECH ISLAND FIRE STATION	Aiken		38.2	69	68	66	65	60	100%	OTHER	01	AREA	MIDDLE SCALE	POPULATION EXPOSURE
BEAUFORT KING STREET	Beaufort	Beaufort	22.9	91	88	51	45	58	97%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
JENKINS AVE. FIRE STATION	Charleston	North Charleston	32.3	113	90	54	53	60	100%	OTHER	02	AREA	NEIGHBORHOOD	HIGHEST CONCENTRATION
CAPE ROMAIN WILDLIFE REFUGE	Charleston		19.7	82	70	59	42	51	85%	OTHER	02	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
U S NAVAL BASE	Charleston	North Charleston	27.5	105	67	58	50	60	100%	OTHER	02	POINT	NEIGHBORHOOD	SOURCE ORIENTED
FLORENCE COUNTY HEALTH DEPT.	Florence	Florence	32.3	87	74	68	63	59	98%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
GEORGETOWN CMS	Georgetown	Georgetown	84.3	273	218	200	178	56	93%	OTHER	02	POINT	MIDDLE SCALE	HIGHEST CONCENTRATION
MARYVILLE	Georgetown	Georgetown	24.0	65	50	45	42	56	93%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
WINYAH	Georgetown	Georgetown	38.9	145	90	88	83	57	95%	OTHER	01	POINT	NEIGHBORHOOD	HIGHEST CONCENTRATION
HOWARD HIGH SCHOOL #2	Georgetown	Georgetown	41.8	116	115	106	97	58	97%	OTHER	02	POINT	MIDDLE SCALE	HIGHEST CONCENTRATION
GREENVILLE HEALTH DEPT	Greenville	Greenville	30.2	119	67	59	52	53	88%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
GREER	Greenville	Greer	27.9	105	67	64	58	56	93%	OTHER	02	AREA	NEIGHBORHOOD	SOURCE ORIENTED
GREENWOOD COUNTY DSS	Greenwood	Greenwood	25.4	76	67	53	51	56	93%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
PREMIER ROAD	Greenwood		22.7	60	50	48	42	56	93%	OTHER	02	POINT	NEIGHBORHOOD	SOURCE ORIENTED
MYRTLE BEACH	Horry	Myrtle Beach	30.1	108	83	57	56	60	100%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
SALTECH	Lexington		24.2	112	64	46	46	57	95%	INDUSTRIAL	04	POINT	URBAN SCALE	SOURCE ORIENTED
CAYCE FIRE STATION	Lexington	Cayce	35.9	119	98	93	86	58	97%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
BOYER	Orangeburg		25.7	156	109	92	71	57	95%	OTHER	04	AREA	NEIGHBORHOOD	SOURCE ORIENTED
SC DEPT PROBATION, PAROLE	Richland	Columbia	31.9	67	59	56	52	56	93%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
PARKLANE	Richland		26.0	139	75	54	50	60	100%	OTHER	03	AREA	NEIGHBORHOOD	GENERAL/BACKGROUND
BATES HOUSE (USC)	Richland	Columbia	36.4	132	114	94	88	60	100%	OTHER	02	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
CONGAREE BLUFF	Richland		19.9	100	53	50	40	57	95%	OTHER	03	MOBILE	MIDDLE SCALE	GENERAL/BACKGROUND
SPARTANBURG CITY HALL	Spartanburg	Spartanburg	30.0	98	64	58	57	57	95%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
SUMTER COUNTY HEALTH DEPARTMENT	Sumter	Sumter	29.9	63	55	54	48	60	100%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
ROCK HILL WATER FILTER PLANT	York	Rock Hill	38.7	83	74	72	64	55	92%	OTHER	01	AREA	NEIGHBORHOOD	OTHER
State Wide Average =>			31.9					57	84.0%					
State Wide Maximums =>				273	218	200	178							

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
091	HI-VOL	GRAVIMETRIC	INTERMITTENT
092	MEMBRANE-SAMPLER	GRAVIMETRIC	INTERMITTENT

Number of monitors active during the year: 25

Lead (PB) - μg/m³

[Parameter Code = 12128]

[Air quality standard = 1.5 μg/m³ Quartly Mean]

SITE NAME	COUNTY	CITY	1ST QUARTER OBSV.	1ST QUARTER MEAN	2ND QUARTER OBSV.	2ND QUARTER MEAN	3RD QUARTER OBSV.	3RD QUARTER MEAN	4TH QUARTER OBSV.	4TH QUARTER MEAN	ANNUAL OBSV.	ANNUAL COMPLETE	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
BEECH ISLAND FIRE STATION	Aiken		15	0.001	15	0.001	16	0.001	14	0.001	60	100%	OTHER	01	AREA	MIDDLE SCALE	OTHER
BEAUFORT KING STREET	Beaufort	Beaufort	13	0.001	15	0.001	16	0.003	14	0.002	58	97%	OTHER	01	AREA	NEIGHBORHOOD	OTHER
JENKINS AVE. FIRE STATION	Charleston	North Charleston	15	0.002	15	0.003	15	0.005	15	0.003	60	100%	SLAMS	02	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
CAPE ROMAIN WILDLIFE REFUGE	Charleston		13	0.004	12	0.001	12	0.001	14	0.002	51	85%	OTHER	01	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
U S NAVAL BASE	Charleston	North Charleston	14	0.004	15	0.002	16	0.002	15	0.005	60	100%	OTHER	02	POINT	NEIGHBORHOOD	SOURCE ORIENTED
GEORGETOWN CMS	Georgetown	Georgetown	13	0.008	14	0.006	16	0.017	13	0.007	56	93%	OTHER	02	POINT	MIDDLE SCALE	OTHER
MARYVILLE	Georgetown	Georgetown	13	0.001	14	0.001	16	0.003	13	0.001	56	93%	OTHER	01	AREA	NEIGHBORHOOD	OTHER
WINYAH	Georgetown	Georgetown	13	0.007	15	0.009	16	0.003	13	0.002	57	95%	SLAMS	01	POINT	NEIGHBORHOOD	OTHER
HOWARD HIGH SCHOOL #2	Georgetown	Georgetown	13	0.010	15	0.010	16	0.004	14	0.004	58	97%	OTHER	02	POINT	MIDDLE SCALE	OTHER
GREENVILLE HEALTH DEPT	Greenville	Greenville	12	0.003	15	0.002	15	0.005	11	0.006	53	88%	SLAMS	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
GREER	Greenville	Greer	14	0.001	13	0.001	15	0.001	14	0.001	56	93%	SLAMS	02	AREA	NEIGHBORHOOD	SOURCE ORIENTED
GREENWOOD COUNTY DSS	Greenwood	Greenwood	13	0.004	14	0.006	16	0.002	13	0.004	56	93%	OTHER	01	AREA	NEIGHBORHOOD	OTHER
PREMIER ROAD	Greenwood		14	0.004	14	0.011	15	0.008	13	0.002	56	93%	OTHER	02	POINT	NEIGHBORHOOD	SOURCE ORIENTED
MYRTLE BEACH	Horry	Myrtle Beach	15	0.002	15	0.002	16	0.002	14	0.003	60	100%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
SALTECH	Lexington		13	0.001	15	0.003	15	0.003	14	0.004	57	95%	INDUSTRIAL	04	POINT	URBAN SCALE	SOURCE ORIENTED
CAYCE FIRE STATION	Lexington	Cayce	13	0.004	15	0.005	16	0.005	14	0.018	58	97%	OTHER	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
SC DEPT PROBATION, PAROLE	Richland	Columbia	12	0.002	14	0.005	16	0.002	14	0.006	56	93%	SLAMS	01	AREA	NEIGHBORHOOD	WELFARE RELATED IMPACTS
PARKLANE	Richland		15	0.001	15	0.001	16	0.001	14	0.002	60	100%	OTHER	03	AREA	NEIGHBORHOOD	GENERAL/BACKGROUND
BATES HOUSE (USC)	Richland	Columbia	15	0.003	15	0.004	16	0.004	14	0.011	60	100%	OTHER	02	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
CONGAREE BLUFF	Richland		15	0.001	14	0.001	15	0.001	13	0.002	57	95%	OTHER	03	MOBILE	MIDDLE SCALE	GENERAL/BACKGROUND
SPARTANBURG CITY HALL	Spartanburg	Spartanburg	13	0.003	15	0.002	14	0.002	15	0.005	57	95%	OTHER	01	AREA	NEIGHBORHOOD	OTHER
SUMTER COUNTY HEALTH DEPARTMENT	Sumter	Sumter	15	0.004	15	0.003	16	0.002	14	0.007	60	100%	OTHER	01	AREA	NEIGHBORHOOD	OTHER
ROCK HILL WATER FILTER PLANT	York	Rock Hill	12	0.003	14	0.004	15	0.002	14	0.006	55	92%	OTHER	01	AREA	NEIGHBORHOOD	OTHER
State Wide Average =>			14	0.003	14	0.004	15	0.003	14	0.004	57	83.1%					

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
092	HI-VOL	ATOMIC ABSORPTION	INTERMITTENT

Number of monitors active during the year: 23

Background Concentrations for Modeling Purposes:*

Carbon Monoxide (CO) - μ g/m³

[Air quality standard = 40,000 μ g/m³ 1hr Max, 10,000 μ g/m³ 8hr Max]

SITE NAME	COUNTY	CITY	MAX 1-HR 1ST	MAX 1-HR 2ND	MAX 8-HR 1ST	MAX 8-HR 2ND
ASHE STREET	Charleston	Charleston	5267	5267	3435	3092
CAPE ROMAIN WILDLIFE REFUGE	Charleston		3893	2405	802	687
GREENVILLE HEALTH DEPT	Greenville	Greenville	4695	4580	3550	3550
STATE HOSPITAL	Richland	Columbia	3321	3321	2863	2519

*These concentrations were converted to μg/m³ from the ppm monitored concentrations (below), using the CO conversion factor μg/m³ = 1.145 * ppm *1000, to obtain backgound concentrations used in air dispersion modeling analyses.

Carbon Monoxide (CO) - PPM

[Parameter Code = 42101]

[Air quality standard = 35 PPM 1hr Max, 9 PPM 8hr Max]

SITE NAME	MAX 1-HR 1ST	MAX 1-HR 2ND	MAX 8-HR OBS> 35	MAX 8-HR 1ST	MAX 8-HR 2ND	MAX 8-HR OBS> 9	ANNUAL OBSV.	ANNUAL Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
ASHE STREET	4.6	4.6	0	3.0	2.7	0	8681	99%	SLAMS	01	AREA	MICROSCALE	HIGHEST CONCENTRATION
CAPE ROMAIN WILDLIFE REFUGE	3.4	2.1	0	0.7	0.6	0	6685	90%	OTHER	02	MOBILE	MIDDLE SCALE	GENERAL/BACKGROUND
GREENVILLE HEALTH DEPT	4.1	4.0	0	3.1	3.1	0	8351	95%	OTHER	01	AREA	MIDDLE SCALE	WELFARE RELATED IMPACTS
STATE HOSPITAL	2.9	2.9	0	2.5	2.2	0	8598	98%	SLAMS	01	MOBILE	MICROSCALE	HIGHEST CONCENTRATION
State Wide Average =>			0			0	8079	95.5%					
State Wide Maximums =>	4.6	4.6		3.1	3.1								

ALL ARE CONTINUOUS MONITORS

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
054	INSTRUMENTAL	NONDISPERSIVE INFRARED	CONTINUOUS

Number of monitors active during the year: 4

Background Concentrations for Modeling Purposes:*

Sulfur Dioxide (SO_2) - $\mu g/m^3$

[Air quality standard = 80 $\mu g/m^3$ Annual, 365 $\mu g/m^3$ 24hr, 1300 $\mu g/m^3$ 3hr]

SITE NAME	COUNTY	CITY	ANNUAL MEAN	MAX 24HR 1ST	MAX 24HR 2ND	MAX 3HR 1ST	MAX 3HR 2ND
BARNWELL CMS	Barnwell		4.5	18.3	18.3	34.0	31.4
JENKINS AV. FIRE STATION	Charleston	North Charleston	6.5	28.8	28.8	94.2	70.7
CAPE ROMAIN WILDLIFE REFUGE	Charleston		4.5	18.3	15.7	70.7	60.2
GEORGETOWN CMS	Georgetown	Georgetown	5.0	20.9	20.9	102.1	81.2
GREENVILLE HEALTH DEPT.	Greenville	Greenville	7.9	55.0	36.7	110.0	83.8
IRMO	Lexington	Irmo	9.7	70.7	62.8	280.1	217.3
LONG CREEK	Oconee		5.0	26.2	23.6	52.4	47.1
BOYER	Orangeburg		4.5	20.9	15.7	91.6	57.6
PARKLANE	Richland		7.9	26.2	26.2	75.9	55.0
CONGAREE BLUFF	Richland		4.2	23.6	23.6	83.8	78.5
SCDHEC PARKING LOT	Richland	Columbia	6.8	20.9	20.9	52.4	47.1

*These concentrations were converted to $\mu g/m^3$ from the ppm monitored concentrations (below), using the SO_2 conversion factor $\mu g/m^3$ = 2618 * ppm, to obtain backgound concentrations used in air dispersion modeling analyses.

Sulfur Dioxide (SO2) - PPM

[Parameter Code = 42401]

[Air quality standard = .03 PPM Annual, .139 PPM 24hr, .494 PPM 3hr]

SITE NAME	ANNUAL MEAN	MAX 24HR 1ST	MAX 24HR 2ND	OBS> 0.14	MAX 3HR 1ST	MAX 3HR 2ND	OBS> 0.50	MAX 1HR 1ST	MAX 1HR 2ND	ANNUAL OBSV	ANNUAL Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
BARNWELL CMS	0.0017	0.007	0.007	0	0.013	0.012	0	0.019	0.016	8635	99%	INDUSTRIAL	02	AREA	URBAN SCALE	SOURCE ORIENTED
JENKINS AV. FIRE STATION	0.0025	0.011	0.011	0	0.036	0.027	0	0.048	0.042	8682	99%	NAMS	02	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
CAPE ROMAIN WILDLIFE REFUGE	0.0017	0.007	0.006	0	0.027	0.023	0	0.049	0.043	8643	99%	SLAMS	02	POINT	REGIONAL SCALE	SOURCE ORIENTED
GEORGETOWN CMS	0.0019	0.008	0.008	0	0.039	0.031	0	0.062	0.053	8689	99%	SLAMS	02	POINT	NEIGHBORHOOD	OTHER
GREENVILLE HEALTH DEPT.	0.0030	0.021	0.014	0	0.042	0.032	0	0.054	0.049	8696	99%	SLAMS	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
IRMO	0.0037	0.027	0.024	0	0.107	0.083	0	0.149	0.126	8568	98%	OTHER	04	AREA	NEIGHBORHOOD	SOURCE ORIENTED
LONG CREEK	0.0019	0.010	0.009	0	0.020	0.018	0	0.030	0.024	8660	99%	OTHER	05	AREA	REGIONAL SCALE	REGIONAL TRANSPORT
BOYER	0.0017	0.008	0.006	0	0.035	0.022	0	0.056	0.028	8307	95%	OTHER	04	POINT	NEIGHBORHOOD	SOURCE ORIENTED WELFARE RELATED IMPACTS
PARKLANE	0.0030	0.010	0.010	0	0.029	0.021	0	0.031	0.031	8504	97%	OTHER	05	AREA	NEIGHBORHOOD	OTHER
CONGAREE BLUFF	0.0016	0.009	0.009	0	0.032	0.030	0	0.080	0.050	8676	99%	OTHER	03	AREA	MIDDLE SCALE	GENERAL/BACKGROUND
SCDHEC PARKING LOT	0.0026	0.008	0.008	0	0.020	0.018	0	0.031	0.030	8693	99%	SLAMS	01	AREA	MIDDLE SCALE	POPULATION EXPOSURE
State Wide Average =>	0.0023			0			0			8614	98.4%					
State Wide Maximums =>		0.027	0.024		0.107	0.083		0.149	0.126							

ALL ARE CONTINUOUS MONITORS

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
020	INSTRUMENTAL	PULSED FLUORESCENT	CONTINUOUS
060	INSTRUMENTAL	PULSED FLUORESCENT	CONTINUOUS

Number of monitors active during the year: 11

Background Concentrations for Modeling Purposes:*

Nitrogen Dioxide (NO_2) - μg/m³

[Air quality standard = 100 μg/m³ Annual Mean]

SITE NAME	COUNTY	CITY	ANNUAL MEAN
JACKSON MIDDLE SCHOOL	Aiken		7.90
BARNWELL CMS	Barnwell		5.83
JENKINS AV. FIRE STATION	Charleston	North Charleston	19.00
CAPE ROMAIN WILDLIFE REFUGE*	Charleston		7.52
GREENVILLE HEALTH DEPT	Greenville	Greenville	26.90
BOYER	Orangeburg		8.28
PARKLANE	Richland		22.95
CONGAREE BLUFF	Richland		6.21

*These concentrations were converted to μg/m³ from the ppm monitored concentrations (below), using the NO_2 conversion factor μg/m³ = 1881 * ppm, to obtain backgound concentrations used in air dispersion modeling analyses.

Nitrogen Dioxide (NO2) - PPM

[Parameter Code = 42602]

[Air quality standard = .053 PPM Annual Mean]

SITE NAME	ANNUAL MEAN	MAX 1HR 1ST	MAX 1HR 2ND	ANNUAL OBSV	ANNUAL Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
JACKSON MIDDLE SCHOOL	0.0042	0.029	0.029	7775	89%	INDUSTRIAL	02	AREA	URBAN SCALE	SOURCE ORIENTED
BARNWELL CMS	0.0031	0.019	0.018	7813	89%	INDUSTRIAL	02	AREA	URBAN SCALE	SOURCE ORIENTED
JENKINS AV. FIRE STATION	0.0101	0.056	0.055	8627	98%	SLAMS	02	MOBILE	NEIGHBORHOOD	HIGHEST CONCENTRATION SOURCE ORIENTED
CAPE ROMAIN WILDLIFE REFUGE*	0.0040	0.025	0.022	4058	86%	SLAMS	02	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
GREENVILLE HEALTH DEPT	0.0143	0.078	0.070	8668	99%	SLAMS	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
BOYER	0.0044	0.054	0.042	8417	96%	OTHER	04	AREA	NEIGHBORHOOD	GENERAL/BACKGROUND WELFARE RELATED IMPACTS
PARKLANE	0.0122	0.065	0.059	5999	68%	SLAMS	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
CONGAREE BLUFF	0.0033	0.025	0.021	8494	97%	OTHER	03	MOBILE	MIDDLE SCALE	GENERAL/BACKGROUND
State Wide Average =>	0.0070			7481	90.3%					
State Wide Maximums =>		0.078	0.070							

*: Monitor was replaced by an NOY/NO monitor in July.
ALL ARE CONTINUOUS MONITORS

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
074	INSTRUMENTAL	CHEMILUMINESCENCE	CONTINUOUS

Number of monitors active during the year: 8

Ozone (O3) - PPM
[Parameter Code = 44201]
[Air quality standard = .125 PPM 1hr Daily Max]

SITE NAME	MAXIMUM 1HR 1ST	2ND	3RD	4TH	OBS> .124	ANNUAL OBSV.	Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
DUE WEST	0.090	0.085	0.085	0.084	0	5354	100%	SLAMS	05	AREA	URBAN SCALE	GENERAL/BACKGROUND
JACKSON MIDDLE SCHOOL	0.082	0.081	0.079	0.078	0	5422	99%	SLAMS	02	AREA	URBAN SCALE	SOURCE ORIENTED
POWDERSVILLE	0.101	0.091	0.090	0.089	0	5278	99%	NAMS	01	AREA	URBAN SCALE	POPULATION EXPOSURE REGIONAL TRANSPORT
BARNWELL CMS	0.082	0.081	0.080	0.079	0	8386	95%	SLAMS	02	AREA	URBAN SCALE	SOURCE ORIENTED
BUSHY PARK PUMP STATION	0.086	0.082	0.080	0.079	0	8669	100%	NAMS	03	AREA	URBAN SCALE	HIGHEST CONCENTRATION REGIONAL TRANSPORT UPWIND BACKGROUND
U S ARMY RESERVE	0.087	0.077	0.077	0.077	0	5720	100%	NAMS	02	AREA	NEIGHBORHOOD	HIGHEST CONCENTRATION MAX OZONE CONCENTRATION
CAPE ROMAIN WILDLIFE REFUGE	0.088	0.085	0.081	0.080	0	8455	95%	SLAMS	02	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
COWPENS NATIONAL BATTLE GROUND	0.108	0.099	0.097	0.097	0	8694	100%	SLAMS	03	AREA	URBAN SCALE	UPWIND BACKGROUND
CHESTER AIRPORT	0.096	0.088	0.087	0.086	0	5571	98%	SLAMS	03	AREA	URBAN SCALE	GENERAL/BACKGROUND
CHESTERFIELD	0.092	0.087	0.086	0.083	0	8659	99%	OTHER	03	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
ASHTON	0.081	0.077	0.074	0.074	0	5547	96%	OTHER	05	AREA	URBAN SCALE	GENERAL/BACKGROUND
PEE DEE EXP. STATION	0.101	0.091	0.085	0.083	0	8582	99%	SLAMS	03	AREA	URBAN SCALE	GENERAL/BACKGROUND
TRENTON	0.079	0.077	0.076	0.075	0	8641	97%	NAMS	03	AREA	URBAN SCALE	HIGHEST CONCENTRATION UPWIND BACKGROUND
LONG CREEK	0.086	0.083	0.082	0.082	0	8584	95%	SLAMS	03	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
CLEMSON CMS	0.097	0.091	0.088	0.088	0	5288	99%	SLAMS	03	AREA	URBAN SCALE	GENERAL/BACKGROUND
PARKLANE	0.101	0.090	0.088	0.086	0	5907	100%	NAMS	01	AREA	NEIGHBORHOOD	MAX OZONE CONCENTRATION
CONGAREE BLUFF	0.091	0.089	0.084	0.082	0	8457	96%	OTHER	03	AREA	MIDDLE SCALE	GENERAL/BACKGROUND
SANDHILL EXPERIMENTAL STATION	0.097	0.095	0.093	0.092	0	8682	100%	SLAMS	03	AREA	URBAN SCALE	UPWIND BACKGROUND
NORTH SPARTANBURG FIRE STATION	0.115	0.100	0.099	0.095	0	5580	99%	NAMS	01	AREA	URBAN SCALE	MAX OZONE CONCENTRATION
DELTA	0.091	0.086	0.085	0.084	0	5483	98%	SLAMS	05	AREA	URBAN SCALE	GENERAL/BACKGROUND
INDIANTOWN	0.082	0.081	0.077	0.076	0	5297	100%	OTHER	05	AREA	URBAN SCALE	GENERAL/BACKGROUND
YORK CMS	0.094	0.086	0.086	0.083	0	5577	99%	SLAMS	05	AREA	URBAN SCALE	EXTREME DOWNWIND
State Wide Average =>					0	6902	98.3%					
State Wide Maximums =>	0.115	0.108	0.101	0.101								

ALL ARE CONTINUOUS MONITORS

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
047	INSTRUMENTAL	ULTRA VIOLET	CONTINUOUS

Number of monitors active during the year: 22

Ozone (O3) - PPM
[Parameter Code = 44201]
[Air quality standard = .085 PPM 8hr Daily Average Max, .08 PPM 3 year 4th Maximum Average]

SITE NAME	MAXIMUM 8HR 1ST	2ND	3RD	4TH	OBS> .084	ANNUAL OBSV.	Complete	3 year Average	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
DUE WEST	0.085	0.082	0.080	0.077	1	5,354	100%	0.082	SLAMS	05	AREA	URBAN SCALE	GENERAL/BACKGROUND
JACKSON MIDDLE SCHOOL	0.077	0.074	0.071	0.069	0	5,443	98%	0.080	SLAMS	02	AREA	URBAN SCALE	SOURCE ORIENTED
POWDERSVILLE	0.085	0.084	0.083	0.078	1	5,283	99%	0.086	NAMS	01	AREA	URBAN SCALE	POPULATION EXPOSURE REGIONAL TRANSPORT
BARNWELL CMS	0.078	0.076	0.073	0.073	0	8,347	93%	0.077	SLAMS	02	AREA	URBAN SCALE	SOURCE ORIENTED
BUSHY PARK PUMP STATION	0.074	0.073	0.073	0.070	0	8,683	100%	0.071	NAMS	03	AREA	URBAN SCALE	HIGHEST CONCENTRATION REGIONAL TRANSPORT UPWIND BACKGROUND
U S ARMY RESERVE	0.080	0.074	0.073	0.070	0	5,733	100%	0.070	NAMS	02	AREA	NEIGHBORHOOD	HIGHEST CONCENTRATION MAX OZONE CONCENTRATION
CAPE ROMAIN WILDLIFE REFUGE	0.081	0.077	0.076	0.074	0	8,419	93%	0.072	SLAMS	02	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
COWPENS NATIONAL BATTLE GROUND	0.087	0.082	0.079	0.079	1	8,710	100%	0.084	SLAMS	03	AREA	URBAN SCALE	UPWIND BACKGROUND
CHESTER AIRPORT	0.084	0.081	0.080	0.078	0	5,568	96%	0.084	SLAMS	03	AREA	URBAN SCALE	GENERAL/BACKGROUND
CHESTERFIELD	0.086	0.081	0.075	0.075	1	8,642	99%	**ND**	OTHER	03	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
ASHTON	0.076	0.073	0.072	0.069	0	5,551	96%	0.076	OTHER	05	AREA	URBAN SCALE	GENERAL/BACKGROUND
PEE DEE EXP. STATION	0.087	0.085	0.078	0.075	2	8,597	97%	0.082	SLAMS	03	AREA	URBAN SCALE	GENERAL/BACKGROUND
TRENTON	0.072	0.070	0.070	0.068	0	8,632	97%	0.079	NAMS	03	AREA	URBAN SCALE	HIGHEST CONCENTRATION UPWIND BACKGROUND
LONG CREEK	0.082	0.081	0.080	0.079	0	8,550	95%	0.083	SLAMS	03	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
CLEMSON CMS	0.083	0.083	0.080	0.078	0	5,293	99%	0.084	SLAMS	03	AREA	URBAN SCALE	GENERAL/BACKGROUND
PARKLANE	0.093	0.082	0.078	0.075	1	5,915	100%	0.080	NAMS	01	AREA	NEIGHBORHOOD	MAX OZONE CONCENTRATION
CONGAREE BLUFF	0.079	0.076	0.076	0.074	0	8,449	95%	0.077	OTHER	03	AREA	MIDDLE SCALE	GENERAL/BACKGROUND
SANDHILL EXPERIMENTAL STATION	0.089	0.083	0.083	0.083	1	8,680	99%	**ND**	SLAMS	03	AREA	URBAN SCALE	UPWIND BACKGROUND
NORTH SPARTANBURG FIRE STATION	0.094	0.092	0.085	0.079	3	5,566	98%	0.087	NAMS	01	AREA	URBAN SCALE	MAX OZONE CONCENTRATION
DELTA	0.084	0.080	0.078	0.078	0	5,474	97%	0.080	SLAMS	05	AREA	URBAN SCALE	GENERAL/BACKGROUND
INDIANTOWN	0.078	0.074	0.070	0.069	0	5,300	99%	0.071	OTHER	05	AREA	URBAN SCALE	GENERAL/BACKGROUND
YORK CMS	0.079	0.079	0.077	0.076	0	5,587	99%	0.084	SLAMS	05	AREA	URBAN SCALE	EXTREME DOWNWIND
State Wide Average =>					1	6899	97.7%						
State Wide Maximums =>	0.094	0.093	0.092	0.089									

ND: Not enough data to calculate average or does not meet all the Federal Register Part 50 appendix I requirements.
ALL ARE CONTINUOUS MONITORS

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
047	INSTRUMENTAL	ULTRA VIOLET	CONTINUOUS

Number of monitors active during the year: 22

Acid Precipitation (Rain) - PH

[Parameter Code = 65302]

SITE NAME	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	PERIOD AVERAGE	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
DUE WEST	4.49	4.57	4.48	4.56	4.52	4.28	4.60	4.58	4.50	4.56	4.51	OTHER	05	AREA	URBAN SCALE	REGIONAL TRANSPORT
BARNWELL CMS	4.60	4.63	4.52	4.61	4.61	4.41	4.67	4.47	4.50	4.63	4.56	OTHER	02	AREA	URBAN SCALE	OTHER
CAPE ROMAIN WILDLIFE REFUGE**	4.69	4.46	4.57	4.57	4.61	4.41	4.57				4.55	OTHER	02	AREA	URBAN SCALE	GENERAL/BACKGROUND
COWPENS NATIONAL BATTLE GROUND	4.35	4.45	4.37	4.41	4.38	4.15	4.57	4.50	4.52	4.50	4.42	OTHER	03	AREA	URBAN SCALE	REGIONAL TRANSPORT
WINYAH								4.41	4.71	4.68	4.60	OTHER	01	AREA	URBAN SCALE	OTHER
LONG CREEK	4.51	4.60	4.43	4.53	4.59	4.29	4.57	4.52	4.63	4.58	4.52	OTHER	03	AREA	URBAN SCALE	REGIONAL TRANSPORT
PARKLANE	4.54	4.49	4.53		4.63	4.37	4.65	4.64	4.51	4.69	4.56	OTHER	01	AREA	URBAN SCALE	OTHER
CONGAREE SWAMP NATIONAL MONUMENT*	4.59	4.58	4.52	4.47	4.64	4.25	4.48				4.50	OTHER	03	AREA	URBAN SCALE	GENERAL/BACKGROUND
CONGAREE BLUFF*							4.55	4.54	4.44	4.50	4.51	OTHER	03	AREA	URBAN SCALE	GENERAL/BACKGROUND
DELTA**	4.54	4.52	4.51	4.50	4.57	4.15	4.60	5.06			4.55	OTHER	05	AREA	URBAN SCALE	GENERAL/BACKGROUND
State Wide Average =>	4.54	4.54	4.49	4.52	4.57	4.29	4.58	4.59	4.54	4.59	**4.52**					

* Relocated from CONGAREE SWAMP to CONGAREE BLUFF February, 2000

** Delta terminated on April 3, 2001; Cape Romain taken over by outside contractor

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
075	ANDERSON DUSTFALL BUCKET	GLASS ELECTRODE	INTERMITTENT

Number of monitors active during the year: 7

Particulate Matter (PM10) - μ g/m³

[Parameter Code = 81102]

[Air quality standard = 50 μ g/m³ Annual Mean, 150 μ g/m³ 24hr]

SITE NAME	COUNTY	CITY	WTD ARITH MEAN	MAXIMUM DAILY 1ST	2ND	3RD	4TH	99TH PERCENTILE	OBS> 150	ANNUAL OBSV	Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
JACKSON MIDDLE SCHOOL	Aiken		17.6	36	33	32	31	36	0	51	84%	SLAMS	02	AREA	NEIGHBORHOOD	OTHER
BARNWELL CMS	Barnwell		17.0	36	33	31	28	36	0	52	85%	SLAMS	02	AREA	NEIGHBORHOOD	GENERAL/BACKGROUND
JENKINS AV. FIRE STATION*	Charleston	North Charleston	19.4	50	43	39	38	38	0	311	85%	NAMS	02	AREA	NEIGHBORHOOD	HIGHEST CONCENTRATION
CAPE ROMAIN WILDLIFE REFUGE	Charleston		14.7	32	32	26	24	32	0	54	89%	SLAMS	02	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
U S NAVAL BASE	Charleston	North Charleston	18.6	33	30	29	27	33	0	57	93%	SLAMS	02	POINT	NEIGHBORHOOD	HIGHEST CONCENTRATION
CHESTERFIELD	Chesterfield		20.6	42	40	32	23	42	0	22	71%	OTHER	05	AREA	REGIONAL SCALE	OTHER
GEORGETOWN CMS*	Georgetown	Georgetown	33.1	83	79	78	75	78	0	266	76%	SLAMS	02	POINT	MIDDLE SCALE	HIGHEST CONCENTRATION
WINYAH	Georgetown	Georgetown	21.2	48	44	38	37	48	0	55	90%	OTHER	01	POINT	NEIGHBORHOOD	HIGHEST CONCENTRATION
HOWARD HIGH SCHOOL #2	Georgetown	Georgetown	24.9	56	55	54	49	56	0	56	92%	SLAMS	02	POINT	MIDDLE SCALE	HIGHEST CONCENTRATION
PARKER FIRE STATION*	Greenville		23.6	73	65	62	58	62	0	236	66%	NAMS	01	AREA	NEIGHBORHOOD	HIGHEST CONCENTRATION
SALTECH	Lexington		18.9	55	38	34	34	55	0	53	87%	OTHER	03	AREA	URBAN SCALE	GENERAL/BACKGROUND
CAYCE CMS*	Lexington	Cayce	32.5	109	81	75	74	75	0	270	83%	OTHER	05	POINT	MICROSCALE	SOURCE ORIENTED
PARKLANE	Richland		17.4	36	34	33	30	36	0	55	90%	SLAMS	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
OLYMPIA*	Richland	Columbia	35.0	213	155	147	121	147	2	294	85%	OTHER	05	POINT	MICROSCALE	SOURCE ORIENTED
BATES HOUSE	Richland	Columbia	23.7	56	48	46	44	56	0	56	92%	SLAMS	02	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
SCDHEC PARKING LOT*	Richland	Columbia	17.3	35	35	35	34	34	0	342	94%	SLAMS	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
SPARTANBURG CITY HALL	Spartanburg	Spartanburg	19.5	39	36	31	30	39	0	49	80%	SLAMS	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
ROCK HILL WATER FILTER PLANT	York	Rock Hill	22.4	58	48	39	35	58	0	51	84%	SLAMS	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
State Wide Average =>			22.1					53	0	129	91.1%					
State Wide Maximums =>				213	155	147	121									

*: CONTINUOUS MONITOR

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
063	HI-VOL SA/GMW-1200	GRAVIMETRIC	INTERMITTENT
079	INSTRUMENTAL-R&P SA246B-INLET	TEOM-GRAVIMETRIC	CONTINUOUS

Number of monitors active during the year: 18

SITE NAME	WTD ARITH MEAN	1ST	2ND	3RD	4TH	98TH PERCENTILE	OBS> 65	OBSV	Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor
POWDERSVILLE*	13.88	51.1	41.5	40.8	39.9	34.3	0	347	95%	OTHER	03	AREA	URBAN SCALE	
BEAUFORT KING STREET	21	24.5	22.2	19.8	19.7	19.8	0	119	98%	SLAMS	01	AREA		
MONCKS CORNER		24.4	22.2	21.0	20.9	21.0	0	115	95%					
CAPE ROMAIN WILDLIFE REFUGE*						23.0	0	249	89%	OTHER	02	AREA	URBAN SCALE	GENERAL/BACKGROUND
CHARL			24.7	24.2	23.9	22.2	0	342	94%	SLAMS	01	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
	BEAUFORT Dup				21.8	19.8	25.1	0	52	85%	OTHER	09	AREA	NEIGHBORHOOD	POPULATION EXPOSURE
CHARLESTON PUBLIC WORKS				25	23.4	22.0	0	328	9					

Reactive Oxides of Nitrogen (NOY) - PPM

[Parameter Code = 42600]

SITE NAME	MEAN.	MAXIMUM 1HR 1ST	2ND	3RD	4TH	ANNUAL OBSV	Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
CAPE ROMAIN WILDLIFE REFUGE	0.0028	0.031	0.028	0.024	0.022	3950		OTHER	05	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
State Wide Average =>	0.0028					3950	231.7%					

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
075	LOW LEVEL NOX INSTRUMENTAL	TECO 42S CHEMILUMINESCENCE	CONTINUOUS

Number of monitors active during the year: 1

Nitric Oxide (NO) - PPM

[Parameter Code = 42601]

SITE NAME	MEAN.	MAXIMUM 1HR 1ST	2ND	3RD	4TH	ANNUAL OBSV	Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
CAPE ROMAIN WILDLIFE REFUGE	0.0004	0.013	0.013	0.012	0.01	3549		OTHER	05	AREA	REGIONAL SCALE	GENERAL/BACKGROUND
State Wide Average =>	0.0004					3549	208.2%					

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
075	LOW LEVEL NOX INSTRUMENTAL	TECO 42S CHEMILUMINESCENCE	CONTINUOUS

Number of monitors active during the year: 1

Mercury (Vapor) (HG) - Ng/M3

[Parameter Code = 42242]

SITE NAME	MEAN.	MAXIMUM 1HR 1ST	2ND	3RD	4TH	ANNUAL OBSV	Complete	Monitor Type	Project Code	Dominant Source	Measurement Scale	Monitor Objective
CONGAREE BLUFF	1.079	6.93	2.45	2.13	2.12	7984	91%	OTHER	05	AREA	MIDDLE SCALE	SOURCE ORIENTED
State Wide Average =>	1.079					7984	91.1%					

Method Code	Sample Collection Method	Sample Analysis	Recording Mode
082	DUAL GOLD AMALGAMATION	COLD VAPOR ATOMIC FLUORESCENCE	INTERMITTENT

Number of monitors active during the year: 1

Definitions

SITE ID:	45-ccc-ssss	Where 45 is the EPA state idenfication code for SC, ccc is the county identification code and ssss is the site identification code within the county.
MONITOR TYPE:	NAMS	National Air Monitoring Site
	SLAMS	State and Local Air Monitoring Site
	INDUSTRIAL	Air monitoring site for monitoring an industry
	OTHER	A general codes that covers local complaints, special study monitoring, unclassified monitoring and the like
PROJECT CODE:	01	Population-oriented surveillance
	02	Source-oriented ambient surveillance
	03	Background surveillance
	04	Complaint investigation
	05	Special studies
	09	Duplicate sampling
MEASUREMENT SCALE:	MICROSCALE	Several meters to 100 meters
	MIDDLE SCALE	100 meters to 0.5 Kilometers
	NEIGHBORHOOD	0.5 Kilometers to 4.0 Kilometers
	UNBAN SCALE	4.0 Kilometers to 50 Kilometers
	REGIONAL SCALE	50 Kilometers to 100's of Kilometers

For maximum value used on summary page:

Parameter	Averaging period	Units	Units Defined
TSP	24hr (Daily)	Ug/M3	Micrograms per cubic meter
CO	1hr & 8hr running	PPM	Parts per million
SO2	1hr, 3hr & 24hr	PPM	Parts per million
NO2	1hr	PPM	Parts per million
OZONE	1hr & 8hr running	PPM	Parts per million
PM10	24hr (Daily)	Ug/M3	Micrograms per cubic meter
PM2.5	24hr (Daily)	Ug/M3	Micrograms per cubic meter
NO/NOY	1hr	PPM	Parts per million
HG (Vapor)	1hr	Ng/M3	Nanograms per cubic meter
ACID PRECIPITATION	Annual	PH	

NOTE: Exceptional event data are included in this report.

South Carolina Active Monitoring Sites
[General site information]

SITE NAME	SITE ID	COUNTY	CITY	Land Use	Location Setting	Elevation (meters)	Metropolitan Statistical Area Name	Urban Area Name
DUE WEST	45-001-0001	Abbeville		AGRICULTURAL	RURAL	204.0	Not in one	Not in one
JACKSON MIDDLE SCHOOL	45-003-0003	Aiken		RESIDENTIAL	SUBURBAN	91.0	AUGUSTA-AIKEN, GA-SC	Not in one
BEECH ISLAND FIRE STATION	45-003-1001	Aiken		AGRICULTURAL	RURAL	46.0	AUGUSTA-AIKEN, GA-SC	COLUMBIA, SC
POWDERSVILLE	45-007-0003	Anderson		AGRICULTURAL	SUBURBAN	306.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	COLUMBIA, SC
BARNWELL CMS	45-011-0001	Barnwell		FOREST	RURAL	81.0	Not in one	Not in one
BEAUFORT KING STREET	45-013-0007	Beaufort	Beaufort	COMMERCIAL	URBAN AND CENTER CITY	8.0	Not in one	Not in one
BUSHY PARK PUMP STATION	45-015-0002	Berkeley		INDUSTRIAL	RURAL	2.0	CHARLESTON-NORTH CHARLESTON, SC	Not in one
MONCKS CORNER	45-015-0005	Berkeley	Moncks Corner	INDUSTRIAL	RURAL	11.0	CHARLESTON-NORTH CHARLESTON, SC	Not in one
U S ARMY RESERVE	45-015-0042	Berkeley	North Charleston	FOREST	SUBURBAN	4.0	CHARLESTON-NORTH CHARLESTON, SC	COLUMBIA, SC
JENKINS AVE. FIRE STATION	45-019-0003	Charleston	North Charleston	COMMERCIAL	URBAN AND CENTER CITY	7.5	CHARLESTON-NORTH CHARLESTON, SC	COLUMBIA, SC
ASHE STREET	45-019-0005	Charleston	Charleston	COMMERCIAL	URBAN AND CENTER CITY	3.0	CHARLESTON-NORTH CHARLESTON, SC	COLUMBIA, SC
CAPE ROMAIN WILDLIFE REFUGE	45-019-0046	Charleston		FOREST	RURAL	3.0	CHARLESTON-NORTH CHARLESTON, SC	COLUMBIA, SC
U S NAVAL BASE	45-019-0047	Charleston	North Charleston	INDUSTRIAL	URBAN AND CENTER CITY	5.0	CHARLESTON-NORTH CHARLESTON, SC	COLUMBIA, SC
CHARLESTON FAA BEACON	45-019-0048	Charleston	Charleston	RESIDENTIAL	SUBURBAN	12.0	CHARLESTON-NORTH CHARLESTON, SC	Not in one
CHARLESTON PUBLIC WORKS	45-019-0049	Charleston	Charleston	RESIDENTIAL	URBAN AND CENTER CITY	2.0	CHARLESTON-NORTH CHARLESTON, SC	Not in one
COWPENS NATIONAL BATTLE GROUND	45-021-0002	Cherokee		FOREST	RURAL	296.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	COLUMBIA, SC
CHESTER	45-023-0002	Chester		COMMERCIAL	RURAL	201.0	Not in one	SPARTANBURG, SC
CHESTERFIELD	45-025-0001	Chesterfield		FOREST	RURAL	133.0	Not in one	SPARTANBURG, SC
ASHTON	45-029-0002	Colleton		AGRICULTURAL	RURAL	35.0	Not in one	Not in one
PEE DEE EXP. STATION	45-031-0003	Darlington		AGRICULTURAL	RURAL	64.0	Not in one	SUMTER, SC
TRENTON	45-037-0001	Edgefield		AGRICULTURAL	RURAL	190.0	AUGUSTA-AIKEN, GA-SC	Not in one
FLORENCE COUNTY HEALTH DEPT	45-041-0001	Florence	Florence	COMMERCIAL	URBAN AND CENTER CITY	40.0	FLORENCE, SC	Not in one
H L SNEED MIDDLE SCHOOL	45-041-0002	Florence	Florence	RESIDENTIAL	RURAL	13.0	FLORENCE, SC	ROCK HILL, SC
GEORGETOWN CMS	45-043-0006	Georgetown	Georgetown	INDUSTRIAL	URBAN AND CENTER CITY	9.0	Not in one	Not in one
MARYVILLE	45-043-0007	Georgetown	Georgetown	RESIDENTIAL	SUBURBAN	13.0	Not in one	Not in one
WINYAH	45-043-0009	Georgetown	Georgetown	RESIDENTIAL	URBAN AND CENTER CITY	3.0	Not in one	Not in one
HOWARD HIGH SCHOOL #2	45-043-0010	Georgetown	Georgetown	INDUSTRIAL	URBAN AND CENTER CITY	10.0	Not in one	Not in one
GREENVILLE HEALTH DEPT	45-045-0008	Greenville	Greenville	COMMERCIAL	URBAN AND CENTER CITY	288.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	GREENVILLE
TAYLORS	45-045-0009	Greenville	Taylors	RESIDENTIAL	SUBURBAN	1.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	Not in one
PARKER FIRE STATION	45-045-1002	Greenville		RESIDENTIAL	SUBURBAN	301.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	GREENVILLE
GREER	45-045-2002	Greenville	Greer	COMMERCIAL	URBAN AND CENTER CITY	315.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	Not in one
GREENWOOD COUNTY DSS	45-047-0001	Greenwood	Greenwood	COMMERCIAL	SUBURBAN	197.0	Not in one	Not in one
PREMIER ROAD	45-047-0002	Greenwood		INDUSTRIAL	SUBURBAN	187.0	Not in one	Not in one
MERRYWOOD	45-047-0003	Greenwood	Greenwood	COMMERCIAL	SUBURBAN	195.0	Not in one	Not in one
MYRTLE BEACH	45-051-0002	Horry	Myrtle Beach	COMMERCIAL	URBAN AND CENTER CITY	9.0	MYRTLE BEACH, SC	MYRTLE BEACH
SALTECH	45-063-0005	Lexington		AGRICULTURAL	RURAL	128.0	COLUMBIA, SC	Not in one
IRMO	45-063-0008	Lexington	Irmo	COMMERCIAL	SUBURBAN	69.0	COLUMBIA, SC	Not in one
CAYCE CMS	45-063-0009	Lexington	Cayce	COMMERCIAL	URBAN AND CENTER CITY	55.0	COLUMBIA, SC	COLUMBIA
CAYCE FIRE STATION	45-063-1002	Lexington	Cayce	COMMERCIAL	URBAN AND CENTER CITY	61.0	COLUMBIA, SC	COLUMBIA
LONG CREEK	45-073-0001	Oconee		FOREST	RURAL	658.0	Not in one	Not in one
ORANGEBURG	45-075-0002	Orangeburg	Orangeburg	RESIDENTIAL	SUBURBAN	78.0	Not in one	Not in one
BOYER	45-075-0003	Orangeburg		FOREST	RURAL	1.0	Not in one	Not in one
CLEMSON CMS	45-077-0002	Pickens	Clemson	AGRICULTURAL	RURAL	219.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	Not in one
SC DEPT. PROBATION, PAROLE	45-079-0006	Richland	Columbia	COMMERCIAL	SUBURBAN	76.0	COLUMBIA, SC	COLUMBIA
PARKLANE	45-079-0007	Richland		RESIDENTIAL	SUBURBAN	122.0	COLUMBIA, SC	COLUMBIA
OLYMPIA	45-079-0018	Richland	Columbia	COMMERCIAL	URBAN AND CENTER CITY	53.0	COLUMBIA, SC	COLUMBIA
BATES HOUSE	45-079-0019	Richland	Columbia	RESIDENTIAL	URBAN AND CENTER CITY	70.0	COLUMBIA, SC	COLUMBIA
STATE HOSPITAL	45-079-0020	Richland	Columbia	COMMERCIAL	URBAN AND CENTER CITY	0.0	COLUMBIA, SC	COLUMBIA
CONGAREE BLUFF	45-079-0021	Richland		FOREST	RURAL	33.9	COLUMBIA, SC	Not in one
SANDHILL EXPERIMENTAL STATION	45-079-1001	Richland		AGRICULTURAL	RURAL	139.0	COLUMBIA, SC	COLUMBIA
SCDHEC PARKING LOT	45-079-1003	Richland	Columbia	COMMERCIAL	URBAN AND CENTER CITY	81.0	COLUMBIA, SC	COLUMBIA
SPARTANBURG CITY HALL	45-083-0001	Spartanburg	Spartanburg	COMMERCIAL	URBAN AND CENTER CITY	238.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	SPARTANBURG
NORTH SPARTANBURG FIRE STATION	45-083-0009	Spartanburg		RESIDENTIAL	RURAL	265.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	SPARTANBURG
WEST VIEW ELEMETARY SCHOOL	45-083-0010	Spartanburg		RESIDENTIAL	SUBURBAN	260.0	GREENVILLE-SPARTANBURG-ANDERSON, SC	Not in one
SUMTER COUNTY HEALTH DEPARTMENT	45-085-0001	Sumter	Sumter	COMMERCIAL	URBAN AND CENTER CITY	49.0	SUMTER, SC	Not in one
DELTA	45-087-0001	Union		FOREST	RURAL	112.0	Not in one	Not in one
INDIANTOWN	45-089-0001	Williamsburg		AGRICULTURAL	RURAL	18.0	Not in one	Not in one
ROCK HILL WATER FILTER PLANT	45-091-0005	York	Rock Hill	COMMERCIAL	SUBURBAN	189.0	CHARLOTTE-GASTONIA-ROCK HILL, NC-SC	ROCK HILL
YORK CMS	45-091-0006	York		AGRICULTURAL	SUBURBAN	222.0	CHARLOTTE-GASTONIA-ROCK HILL, NC-SC	Not in one

South Carolina Active Monitoring Sites

[Site Coordinates]

SITE NAME	SITE ID	Latitude	Longitude	UTM (Zone = 17) Easting	UTM (Zone = 17) Northing
DUE WEST	45-001-0001	34.325556	-82.386111	372,478.00	3,798,898.00
JACKSON MIDDLE SCHOOL	45-003-0003	33.342220	-81.788610	426,614.50	3,689,311.84
BEECH ISLAND FIRE STATION	45-003-1001	33.430550	-81.892220	417,056.53	3,699,182.63
POWDERSVILLE	45-007-0003	34.776608	-82.490267	363,633.56	3,849,103.80
BARNWELL CMS	45-011-0001	33.320345	-81.465538	456,668.07	3,686,705.82
BEAUFORT KING STREET	45-013-0007	32.436530	-80.677850	530,284.46	3,588,679.91
BUSHY PARK PUMP STATION	45-015-0002	32.987220	-79.936660	599,351.63	3,650,181.04
MONCKS CORNER	45-015-0005	33.195210	-79.976760	595,379.92	3,673,202.81
U S ARMY RESERVE	45-015-0042	32.910000	-79.965278	596,762.00	3,641,594.00
JENKINS AVE. FIRE STATION	45-019-0003	32.882289	-79.977537	595,645.05	3,638,510.24
ASHE STREET	45-019-0005	32.794117	-79.946915	598,607.12	3,628,763.53
CAPE ROMAIN WILDLIFE REFUGE	45-019-0046	32.942747	-79.657175	625,529.57	3,645,548.32
U S NAVAL BASE	45-019-0047	32.842778	-79.947778	598,473.00	3,634,157.00
CHARLESTON FAA BEACON	45-019-0048	32.980000	-80.065278	587,347.00	3,649,274.00
CHARLESTON PUBLIC WORKS	45-019-0049	32.790833	-79.958611	597,515.00	3,628,389.00
COWPENS NATIONAL BATTLE GROUND	45-021-0002	35.130278	-81.816389	425,619.00	3,887,598.00
CHESTER	45-023-0002	34.792500	-81.203611	481,373.00	3,849,885.00
CHESTERFIELD	45-025-0001	34.615367	-80.198787	573,455.02	3,830,485.46
ASHTON	45-029-0002	33.007640	-80.965213	503,249.43	3,651,947.98
PEE DEE EXP. STATION	45-031-0003	34.285556	-79.744722	615,539.00	3,794,336.00
TRENTON	45-037-0001	33.739963	-81.853635	420,926.36	3,733,457.78
FLORENCE COUNTY HEALTH DEPT	45-041-0001	34.196111	-79.798611	610,696.00	3,784,358.00
H L SNEED MIDDLE SCHOOL	45-041-0002	34.167222	-79.850278	605,971.00	3,781,130.00
GEORGETOWN CMS	45-043-0006	33.361944	-79.294167	658,711.00	3,692,520.00
MARYVILLE	45-043-0007	33.347778	-79.298056	658,375.00	3,690,944.00
WINYAH	45-043-0009	33.373889	-79.285556	659,490.00	3,693,858.00
HOWARD HIGH SCHOOL #2	45-043-0010	33.369599	-79.298401	658,302.96	3,693,356.42
GREENVILLE HEALTH DEPT	45-045-0008	34.840446	-82.402914	371,726.35	3,856,065.60
TAYLORS	45-045-0009	34.901046	-82.313070	380,029.66	3,862,644.92
PARKER FIRE STATION	45-045-1002	34.870243	-82.419309	370,273.96	3,859,375.22
GREER	45-045-2002	34.939722	-82.229444	387,723.00	3,866,851.00
GREENWOOD COUNTY DSS	45-047-0001	34.212869	-82.173149	391,927.97	3,786,185.90
PREMIER ROAD	45-047-0002	34.165000	-82.160278	393,053.00	3,780,864.00
MERRYWOOD	45-047-0003	34.128688	-82.173149	391,820.61	3,776,851.36
MYRTLE BEACH	45-051-0002	33.702764	-78.877454	696,714.42	3,731,028.73
SALTECH	45-063-0005	33.783889	-81.119722	488,916.00	3,738,007.00
IRMO	45-063-0008	34.051013	-81.154953	485,698.66	3,767,628.44
CAYCE CMS	45-063-0009	33.973333	-81.052500	495,150.00	3,759,006.00
CAYCE FIRE STATION	45-063-1002	33.968889	-81.065278	493,969.00	3,758,514.00
LONG CREEK	45-073-0001	34.805000	-83.237500	295,318.00	3,853,504.00
ORANGEBURG	45-075-0002	33.528275	-80.866836	512,365.24	3,709,669.08
BOYER	45-075-0003	33.299590	-80.442210	551,931.08	3,684,446.96
CLEMSON CMS	45-077-0002	34.686064	-82.838659	331,566.91	3,839,571.34
SC DEPT. PROBATION, PAROLE	45-079-0006	34.005278	-81.023056	497,871.00	3,762,547.00
PARKLANE	45-079-0007	34.093889	-80.962222	503,485.00	3,772,372.00
OLYMPIA	45-079-0018	33.981944	-81.040000	496,305.00	3,759,991.00
BATES HOUSE	45-079-0019	33.991506	-81.024141	497,770.36	3,761,020.02
STATE HOSPITAL	45-079-0020	34.015278	-81.034167	496,845.00	3,763,656.00
CONGAREE BLUFF	45-079-0021	33.814625	-80.781302	520,240.54	3,741,439.91
SANDHILL EXPERIMENTAL STATION	45-079-1001	34.131261	-80.868319	512,142.00	3,776,523.05
SCDHEC PARKING LOT	45-079-1003	34.026301	-81.036250	496,653.31	3,764,874.05
SPARTANBURG CITY HALL	45-083-0001	34.947500	-81.932500	414,850.00	3,867,421.00
NORTH SPARTANBURG FIRE STATION	45-083-0009	34.988611	-82.075556	401,836.00	3,872,111.00
WEST VIEW ELEMETARY SCHOOL	45-083-0010	34.926667	-82.005000	408,207.00	3,865,174.00
SUMTER COUNTY HEALTH DEPARTMENT	45-085-0001	33.922222	-80.337500	561,238.00	3,753,536.00
DELTA	45-087-0001	34.539377	-81.560354	448,580.41	3,821,910.08
INDIANTOWN	45-089-0001	33.723611	-79.565000	632,955.00	3,732,242.00
ROCK HILL WATER FILTER PLANT	45-091-0005	34.962500	-81.000833	499,924.00	3,868,718.00
YORK CMS	45-091-0006	34.935556	-81.228333	479,147.00	3,865,723.00

STATE/COUNTY POLLUTANT YEARLY SUMMERIES

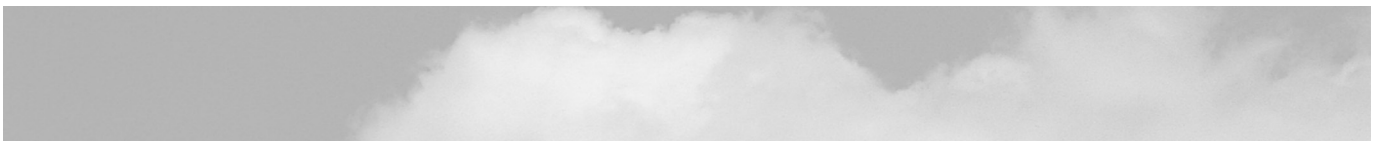
NAME	COUNTY ID	Population	POLLUTANT	TOTAL # OF MONITORS	EXCEEDANCES	MAXIMUM VALUE	ANNUAL AVERAGE
ABBEVILLE	001	23,862	TSP	1	0	36	9.9
			Ozone (1hr)	1	0	0.090	N/A
			Ozone (8hr)		1	0.085	
			Acid Rain	1	N/A	N/A	4.56
AIKEN	003	120,940	TSP	1	N/A	69	14.2
			NO2	1	0	0.029	0.0042
			Ozone (1hr)	1	0	0.082	N/A
			Ozone (8hr)		0	0.077	
			PM10	1	0	36	17.6
ALLENDALE	005	11,722					
ANDERSON	007	145,196	Ozone (1hr)	1	0	0.101	N/A
			Ozone (8hr)		1	0.085	
			PM25	1	0	51.1	13.88
BAMBERG	009	16,902					
BARNWELL	011	20,293	SO2 (1hr)	1	0	0.019	0.0017
			SO2 (3hr)		0	0.013	
			SO2 (24hr)		0	0.007	
			NO2	1	0	0.019	0.0031
			Ozone (1hr)	1	0	0.082	N/A
			Ozone (8hr)		0	0.078	
			PM10	1	0	36	17.0
			Acid Rain	1	N/A	N/A	4.63
BEAUFORT	013	86,425	TSP	1	N/A	91	15.1
			PM25	1	0	24.5	10.21
BERKELEY	015	128,776	Ozone (1hr)	2	0	0.087	N/A
			Ozone (8hr)		0	0.08	
			PM25	1	0	24.4	10.22
CALHOUN	017	12,753					
CHARLESTON	019	295,039	TSP	3	N/A	113	15.0
			CO (1hr)	2	0	4.6	N/A
			CO (8hr)		0	3.0	
			SO2 (1hr)	2		0.049	0.0021
			SO2 (3hr)			0.036	
			SO2 (24hr)		0	0.025	
			NO2	2	0	0.056	0.0071
			NO	1	N/A	0.013	
			NOY	1	N/A	0.031	
			Ozone (1hr)	1	0	0.088	N/A
			Ozone (8hr)		0	0.081	
			PM10	3	0	50	17.6
			PM25	4	0	31.9	11.45
CHEROKEE	021	44,506	Ozone (1hr)	1	0	0.108	N/A
			Ozone (8hr)		1	0.087	
			Acid Rain	1	N/A	N/A	4.50
CHESTER	023	32,170	Ozone (1hr)	1	0	0.10	N/A
			Ozone (8hr)		0	0.084	
CHESTERFIELD	025	38,577	TSP	2	N/A	146	14.1
			Ozone (1hr)	1	0	0.092	N/A
			Ozone (8hr)		1	0.086	
			PM10	1	0	42	20.6
			PM25	2	0	39.0	19.36
CLARENDON	027	28,450					
COLLETON	029	34,377	Ozone (1hr)	1	0	0.081	N/A
			Ozone (8hr)		0	0.076	
			PM25	1	0	28.0	11.68

DARLINGTON	031	61,851	Ozone (1hr)	1	0	0.101	N/A
			Ozone (8hr)		2	0.087	
DILLON	033	29,114					
DORCHESTER	035	83,060					
EDGEFIELD	037	18,375	TSP	1	N/A	30	6.7
			Ozone (1hr)	1	0	0.079	N/A
			Ozone (8hr)		0	0.072	
			PM25	2	0	31.1	12.42
FAIRFIELD	039	22,295					
FLORENCE	041	114,344	TSP	2	N/A	87	8.5
			PM25	1	0	31.0	12.05
GEORGETOWN	043	46,302	TSP	4	N/A	273	26.6
			SO2 (1hr)	1		0.062	0.0019
			SO2 (3hr)			0.039	
			SO2 (24hr)		0	0.008	
			PM10	3	0	83	26.4
			PM25	1	0	28.9	12.26
			Acid Rain	1	N/A	N/A	4.68
GREENVILLE	045	320,167	TSP	3	N/A	119	16.0
			CO (1hr)	1	0	4.1	N/A
			CO (8hr)		0	3.1	
			SO2 (1hr)	1		0.054	0.0030
			SO2 (3hr)			0.042	
			SO2 (24hr)	1	0	0.021	
			NO2	1	0	0.078	0.0143
			PM10	1	0	73	25.6
			PM25	3	0	40.1	14.64
GREENWOOD	047	59,567	TSP	3	N/A	76	11.2
			PM25	1	0	36.6	12.64
HAMPTON	049	18,191					
HORRY	051	144,053	TSP	1	N/A	108	15.5
			PM25	2	0	28.3	10.66
JASPER	053	15,487					
KERSHAW	055	43,599					
LANCASTER	057	54,516					
LAURENS	059	58,092					
LEE	061	18,437					
LEXINGTON	063	167,611	TSP	2	N/A	119	19.6
			SO2 (1hr)	1		0.149	0.0037
			SO2 (3hr)			0.107	
			SO2 (24hr)		0	0.027	
			PM10	2	0	109	25.7
			PM25	1	0	32.6	12.87
MCCORMICK	065	8,868					
MARION	067	33,899					
MARLBORO	069	29,361					
NEWBERRY	071	33,172					
OCONEE	073	57,494	SO2 (1hr)	1	0	0.030	0.0019
			SO2 (3hr)			0.020	
			SO2 (24hr)	1	0	0.010	
			Ozone (1hr)	1	0	0.086	N/A
			Ozone (8hr)		0	0.083	
			PM25	2	0	51.9	10.53
			Acid Rain	1	N/A	N/A	4.58
ORANGEBURG	075	84,803	TSP	1	N/A	156	26.3
			SO2 (1hr)	1		0.056	0.0017
			SO2 (3hr)			0.035	
			SO2 (24hr)		0	0.008	
			NO2	1	0	0.054	0.0044
			PM25	1	0	29.5	11.52

PICKENS	077	93,894	Ozone (1hr)	1	0	0.097	N/A
			Ozone (8hr)		0	0.083	
			PM25	1	0	29.5	13.13
RICHLAND	079	285,720	TSP	5	N/A	139	17.0
			CO (1hr)	1	0	2.9	N/A
			CO (8hr)		0	2.5	
			SO2 (1hr)	3		0.080	0.0024
			SO2 (3hr)			0.032	
			SO2 (24hr)		0	0.010	
			NO2	2	0	0.065	0.0078
			Ozone (1hr)	3	0	0.101	N/A
			Ozone (8hr)		2	0.093	
			PM10	5	2	213	22.3
			PM25	5	0	40.3	14.17
			HG	1	N/A	6.93	1.079
			Acid Rain	2	N/A	N/A	4.69
SALUDA	081	16,357					
SPARTANBURG	083	226,800	TSP	1	N/A	96	14.6
			Ozone (1hr)	1	0	0.115	N/A
			Ozone (8hr)		3	0.094	
			PM10	1	0	39	19.5
			PM25	1	0	40.6	13.56
SUMTER	085	102,637	TSP	1	N/A	63	11.6
UNION	087	30,337	Ozone (1hr)	1	0	0.091	N/A
			Ozone (8hr)		0	0.084	
WILLIAMSBURG	089	36,815	Ozone (1hr)	1	0	0.082	N/A
			Ozone (8hr)		0	0.078	
YORK	091	131,497	TSP	1	N/A	83	14.0
			Ozone (1hr)	1	0	0.094	N/A
			Ozone (8hr)		0	0.079	
			PM10	1	0	58	22.4
STATE TOTAL	45	168,312	TSP	33	N/A	273	16.3
			CO (1hr)	4	0	4.6	N/A
			CO (8hr)		0	3.1	
			SO2 (1hr)	11	0	0.149	0.0023
			SO2 (3hr)		0	0.107	
			SO2 (24hr)		0	0.027	
			NO2	8	0	0.078	0.0070
			NO	1	N/A	0.013	0.0004
			NOY	1	N/A	0.031	0.0028
			Ozone (1hr)	22	0	0.115	N/A
			Ozone (8hr)		11	0.094	
			PM10	19	2	213	21.9
			PM25	31	0	51.9	12.55
			HG	1	N/A	6.93	1.079
			Acid Rain	7	N/A	N/A	4.69

APPENDIX B: GLOSSARY/ACRONYMS

AFV	Alternative Fuel Vehicle
AIRS	Aerometric Information Retrieval System
ALAPCO	Association of Local Air Pollution Control Officials
ALIS	Asbestos Licensing Information System
APDLN	Air Pollution Distance Learning Network
APTI	Air Pollution Training Institute
AQI	Air Quality Index
AQCRs	Air Quality Control Regions
BACT	Best Available Control Technology
BAQ	Bureau of Air Quality
BDT	Best Demonstrated Technology
BTU	British Thermal Unit (mmBTU=one million BTUs)
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAP	Citizen's Advisory Panel Clean Air Partnership
CAPCA	Carolina Air Pollution Control Association
CARB	California Air Resources Board
CEMS	Continuous Emissions Monitoring Systems
CEP	Cumulative Exposure Project
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CTGs	Control Technique Guidelines
DASM	District Air Section Manager
DASP	District Air Section Personnel
EAC	Early Action Compact
ECHO	Enforcement and Compliance History Online
ECOS	Environmental Council of States
EFIS	Environmental Facilities Information System
EPA	Environmental Protection Agency
EQC	Environmental Quality Control
ERP	Early Reductions Program
FHA	Federal Highway Administration
FIP	Federal Implementation Plan
FTA	Federal Transit Administration
HAPs	Hazardous Air Pollutants
HDDEM	Heavy Duty Diesel Engine Manufacturer
HON	Hazardous Organic NESHAP
IAQ	Indoor Air Quality
LAER	Lowest Achievable Emission Rate
LEV	Low Emission Vehicle
MAAC	Maximum Allowable Ambient Concentration
MACT	Maximum Achievable Control Technology
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industrial Classification System
NAMS	National Air Monitoring Stations
NARS	National Asbestos Registry System
NATA	National Air Toxics Assessment
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NEI	National Emissions Inventory
NETI	National Enforcement Training Institute
NO_x	Oxides of Nitrogen
NSPS	New Source Performance Standards
NSR	New Source Review
NTI	National Toxics Inventory
O_3	Ozone
OTAG	Ozone Transport Assessment Group
Pb	Lead
PCA	Pollution Control Act
PM (or PT)	Particulate Matter



PSD	Prevention of Significant Deterioration
PSI	Pollutant Standard Index
RACT	Reasonably Available Control Technology
RMP	Risk Management Plan
RSEI	Risk Screening Environmental Indicator
SAI	Systems Applications International
SAMI	Southern Appalachian Mountains Initiative
SARA	Superfund Amendments and Reauthorization Act
SBAP	Small Business Assistance Program
SCR	Selective Catalytic Reduction
SC DHEC	South Carolina Department of Health and Environmental Control
SESARM	Southeastern States Air Resource Managers
SI	Self Instruction
SIC	Standard Industrial Classification (Codes)
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Stations
SO_x	Sulfur Oxides
STAD	State and Tribal Air Directors
STAPPA	State and Territorial Air Pollution Program Administrators
TAPs	Toxic Air Pollutants
TCM	Transportation Control Measures
TEA-21	Transportation Equity Act for the 21st Century
TLVs	Threshold Limit Values
TPY	Tons Per Year
TRI	Toxic Release Inventory
TSP	Total Suspended Particulate
VISTAS	Visibility Improvement–State and Tribal Association of the Southeast
VOC	Volatile Organic Compounds

APPENDIX C: TERMS/DEFINITIONS

The following terms are necessarily general and are offered for educational purposes only. This information should not be relied upon for decisions or determinations regarding per mit ting, compliance, or any other activities.

Acid Rain: Snow, sleet, hail, rain, or fog that has a low pH resulting from pollutants in the air, especially sulfur dioxide and nitrogen oxides.

Air Shed: The geographic region that shares an air supply.

Air Pollution: The contamination of the atmosphere by pollutants from industry, fuel exhaust, and other pollution-creating processes.

Air Quality Index: A guide used to show the amount of certain air pollutants in the outside air and that provides information about possible health effects.

Air Quality Monitoring: Observation or testing to measure pollutants in the outdoor air.

Air Quality Standards: The maximum concentration of pollutants allowed by laws or regulations during a specified time in a defined area.

Ambient Air: Outside air.

Area Source: A source of air pollution not emitted from industrial stacks or vents. For example, fireplaces, wood stoves, and gas-powered lawn equipment.

Biogenic Sources: A subset of natural sources, include only those sources that result from some sort of biological activity.

Biogenic Emissions: Air pollution from natural sources such as trees, shrubs, and other vegetation. They represent a significant portion of the natural emission.

Catalytic Converter: A device used to reduce air pollution from vehicle exhaust.

Chlorofluorocarbons (CFCs): chemicals used as coolants for refrigeration and air conditioning as well as in some consumer products like aerosol hairspray. These chemicals are harmful to the *ozone layer.*

Clean Air Act: The legislation, originally enacted in 1963, revised in 1970, 1977, and amended in 1990, that is the basis for the national air pollution control program.

Clean Fuels: Low-pollution fuels like ethanol or compressed natural gas (CNG) that can replace traditional fuels.

Climate: Weather conditions such as temperature, precipitation, and wind that are typical in an area or region over time.

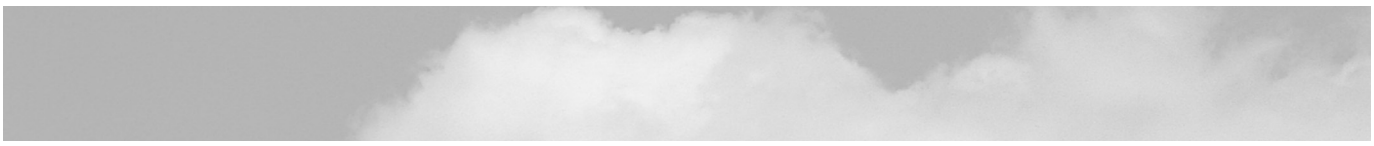
Combustion: Burning of coal, wood, or other material accompanied by release of energy in the form of heat and light; a major contributor to air pollution.

Compliance: The full implementation and observance of state and federal requirements, standards, and regulations.

Criteria Pollutants: Pollutants for which there is a *National Ambient Air Quality Standard* (NAAQS). These pollutants include ozone, lead, particulate matter, nitrogen dioxide, sulfur dioxide, and carbon monoxide.

Emissions: Discharges into the atmosphere from sources such as industrial stacks or vents; from residential chimneys; and from motor vehicles, locomotive, and aircraft exhaust.

Environmental Protection Agency (EPA): The EPA was created in 1970 to set policy and guidelines and to carry out legal mandates to protect environmental resources at the national level.



Fossil Fuels: A combustible material such as coal, petroleum, or natural gas.

Greenhouse Effect: The trapping of heat on the surface of the earth.

Inversion: In the atmosphere, a layer of warm air that lies over a cooler air mass. An inversion traps pollutants close to the earth's surface.

Meteorology: Science that deals with the atmosphere and physical processes that cause weather patterns.

National Ambient Air Quality Standards (NAAQS): Laws or regulations which establish the concentration limits for criteria pollutants in the outside air.

Non-attainment Area: A region or area that fails to meet the standards for one or more of the criteria pollutants.

Off-Road Mobile Sources: Farm vehicles, on-site construction/industrial vehicles, logging/government vehicles, small marine craft, aircraft, trains, ocean-going ships, tugs and ferries.

Open Burning: The burning of any material in an open fire or an outdoor container when specifically designed equipment is not used to control the combustion of air pollution from the fire.

On-Road Mobile Sources: Cars, trucks and buses.

Ozone: A very reactive molecule made up of three oxygen atoms. Ozone can either be good or bad, depending on where it is. *Ground-level ozone* occurs near the earth's surface in the troposphere and is harmful to our lungs and to the environment. The *ozone layer,* 10-35 miles above the earth's surface in the stratosphere, protects us from the sun's harmful rays.

Particulate Matter: Small solid particles, like dust, or liquid droplets that are suspended in the air.

Plume: Visible emissions from a smokestack or chimney.

Pollutant: Substances that directly or indirectly damage humans or the environment. Pollutants can cause the destruction of areas of the environment which are protective to us.

Primary Pollutants: Substances directly produced by a process, such as ash from a volcanic eruption or the carbon monoxide gas from a motor vehicle exhaust.

Secondary Pollutants: These pollutants are not emitted. Rather, they form in the air when primary pollutants react or interact. An important example of a secondary pollutant is ozone-one of the many secondary pollutants that make up photochemical smog.

Smog: A mixture of air pollution, including ground-level ozone, produced by chemical reactions in the air. Smog can harm health, damage the environment, and cause poor visibility.

South Carolina Department of Health and Environmental Control (SC DHEC): S.C. DHEC was created in 1973 when the State Board of Health and the Pollution Control Authority merged. S.C. DHEC is responsible for protecting the state's environment and the health of all South Carolinians.

Stationary (or Point) Source: A non-mobile source of air pollution, such as a power plant or manufacturing facility that emits air pollution.

Sensitive Groups: Those who are at greater risk from the harmful effects of air pollution, like children and people with respiratory diseases such as asthma, chronic bronchitis, and emphysema.

Toxic Release Inventory (TRI): Information from industries about releases of toxic substances above a specified quality

APPENDIX D: EQC REGIONAL OFFICES

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Updated: 7/1/05.

Printed March 2006

Total Printing Cost - $000.00
Number of Documents Printed - 300
Cost Per Unit - $0.00